MATH 347 HONORS (E1H), FALL 2020

Instructor: Ruiyuan Chen (Ronnie)
   Email: `ruiyuan@illinois.???`

Course description: This course is an introduction to advanced mathematics, including mathematical language and logic, proofs and proof techniques, axiomatic mathematics, and basic mathematical structures.

   Most likely, this course will be fundamentally different from previous math courses you have taken. There will be very little focus on computation, algorithms, or even numbers. Instead, learning to think and communicate rigorously about mathematical concepts will be key.

Technology requirements: The course will take place online, via Moodle (`learn.illinois.edu`). There will be no required synchronous activities, other than exams.

- You will need a computer or phone with internet connectivity in order to view lectures and course materials and participate in the online discussion forum.
- You will need either a way to scan and/or take pictures of homeworks and exams, or the ability to write math quickly on a computer (within the time allotted for an exam).
- You will need a microphone in order to participate in Zoom office hours.

Lectures:

- There will be short video lectures posted weekly by Monday. The number of lectures posted each week may not be exactly 3, but they will cover roughly the same amount of material as would be covered in a week's worth of face-to-face classes.
- In addition, there will be typed lecture notes posted each week. These will cover the same content as the videos but in a denser and more formal format. There may also be additional examples and/or optional bonus material included in the notes.

Textbook: There is no required textbook for the course. The posted lecture notes will serve as the definitive reference.

Discussions and communications: Regular course announcements will be posted on Moodle. Special announcements will also be sent out via email.

   There will be three interactive modes of communication available:

- The discussion forum is best for questions that are likely to be of interest to others in the class.
- Zoom office hours are best for specific questions that require a back-and-forth. It would be ideal if you have a method of sharing math in real time (e.g., a tablet, or webcam + paper).
- Email is best for personal questions (e.g., about grading) and highly specific questions about the course material.

You can expect a reply to offline questions within 48 hours. (Do not expect a reply to last-minute questions shortly before a homework or exam is due.)

Homeworks and quizzes: There will be two types of weekly assessments:

- Quizzes will be worth 5% of your final grade, with no grades dropped, due on Tuesdays at 4pm. These will be online and multiple-choice/short-answer, open-book, and with immediate automatic feedback and unlimited tries. Thus, quizzes are effectively graded based on completion only. They are intended to give you low-stakes practice with each week's material; wasting them by asking a friend for the answers is a bad idea!

- Homeworks will be worth 15% of your final grade, with the lowest grade dropped, due on Thursdays at 4pm; in addition, you may hand in 2 homeworks up to 24 hours late with no penalty. These will be proof-based, written problems, that you will need to type or scan and then upload online.

  If you hand in a homework late, of course you may not look at the solution if it's posted before you submit it.

Collaboration is encouraged on both quizzes and homeworks, but you must write up homework solutions yourself.

Exams:

- There will be 3 midterm exams, with the lowest grade worth 10% and the other two worth 20+20% (dates TBD).
- The final exam will be worth 30% (date TBD).

All exams will be online, a mix of multiple-choice/short-answer and free-response, timed, and open-book; you may use all resources that do not involve communication with another person. (For example, googling is okay; texting or posting to online forums is not.) The exams will be designed so that if you know the material well, you should have no need of any resources.

Grading:

- 15% homeworks (lowest dropped) + 5% quizzes
- 20+20+10% midterms
- 30% final exam

There will be no numerical scaling of grades throughout the term. The final letter grade cutoffs will be determined at the end of the term. Grades > 90% are guaranteed an A-, > 80% are guaranteed a B-, etc. (the actual cutoffs may be lower).

In the event of a serious, documented illness or other crisis, an extension or excusal from a homework or exam may be granted at my discretion. All such requests must be made no later than one week after the due date.

Academic integrity: Academic integrity will be taken seriously; see Article I, Part 4 of the student code.

Disability accommodations: If you need disability accommodations, please contact DRES for a letter of accommodation, and send me a copy of the letter. This should be done near the start of the term, well before any exams.