**Class Meetings:** Mondays, Wednesdays, and Fridays 11:15 AM–12:05 PM, in HALE 240

**Instructor:** Eric Stade (email: stade@colorado.edu)

**Office Hours:** Mondays 2–3 PM and Tuesdays 10–11 AM, in Math 305 (extra office hours before exams to be announced)

**Prerequisites:** MATH 1300 or MATH 1310 or APPM 1345 or APPM 1350 (all with a minimum grade of C-).

**Course Canvas page:** `https://canvas.colorado.edu/courses/123987`

**Course text.** *Book of Proof* (a.k.a. "BOP"), by Richard Hammack

This text is available online, for FREE. You can access it from our Canvas page, or go directly to

`https://richardhammack.github.io/BookOfProof/`

If you prefer a hard copy, these are available at the CU Bookstore.

**Various supplemental notes,** including "Notes on the RSA Algorithm" (a.k.a. "RIZZ"), will be provided on our Canvas page, as needed.

In addition, **lecture notes** will be posted online, AFTER the class in which they are delivered. There are no guarantees as to how soon after class they will appear; it could be as much as a week later. But I'll try to have all notes relevant to any given exam posted early enough that you can review them for that exam.

**You should still come to class!** Think of the posted lecture notes as a way of reviewing what you have learned in class. But you will miss a lot (not only in terms of points—see "Requirements and grades" below) if you skip class and rely only on the text and the posted lecture notes to learn the material. Learning is an active experience, and while reading is important (and any assigned reading is critical to the course), all by itself it's a somewhat passive way of learning.

**Mathematics Academic Resource Center, also known as "The MARC."** You may seek assistance with your math questions at the Mathematics Academic Resource Center, in Math 175. Hours and other details may be found at `https://math.colorado.edu/marc/`.

**About the course.** In this course, our goal is to cultivate the following two essential components of understanding, appreciating, and "doing" mathematics:

- proficiency at thinking linearly, algorithmically, and computationally; and

- the careful use of language, especially by means of the mathematical vehicle known as the *proof*.

In other words, this course is aimed at fostering clear mathematical *thought* and *expression*.

We will approach the above goals through the context of the **RSA algorithm**, an iconic and central tool in computer cryptography. No experience in coding or cryptography is required!

**Requirements and grades.** Your grade in this course will be computed on the basis of:

**(a) Exams (70% of your final grade).**

You will have three **in-class midterm exams,** on the following **Mondays:**

**September 22, October 20, and November 17.**

You may **drop** your lowest midterm score. Each of your other two midterm scores will count towards **25%** of your final grade.

You will also have an **in-class final exam** on

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**Tuesday, December 9, 1:30–4 PM,**

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in this classroom. Your final exam score cannot be dropped. It will count towards **20%** of your final grade.

**(b) Homework (0% of your final grade).** Homework, along with readings from your text and/or from supplemental notes, will be assigned roughly every week. **This homework will not be collected or graded** (with the exception of the **"Writing assignments;"** see item **(c)** below). However, *large parts of your midterm exams and your final will be based on the homework.* Some exam problems may be identical to homework problems; some may be identical except for some numbers changed; some may simply be very similar to homework problems. (Some part of each exam – though probably a relatively small part – may look different from the homework. But of course, all exam problems will involve material covered in class or in assigned readings.)

**(c) Writing assignments (10% of your final grade).**

Clear expression of mathematical ideas is, again, an important part of this course. To this end, on

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**Monday, October 6, Monday, November 3, and Monday, December 1**

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you will turn in a *written assignment*, which will consist partly of several exercises taken from your weekly homework up to that point (see item **(b)** above), and partly of additional problems not taken from the homework.

The lowest of your three writing assignment scores will be dropped.

**(d) In-class "RTs" (Random Things – group work or individual quizzes) (12% of your final grade).** On *most* Fridays and on occasional other days of the week, there will be a quiz to be completed individually, *or* an activity to be completed in small groups. Some of these "RTs" may take the entire period; some may only take 20 minutes or so.

Sometimes RTs will be collected and graded. Sometimes they won't, in which case you'll get full credit for an RT as long as your group has completed the RT correctly by the end of the period, and you have shown up and participated actively in your group's discussions.

RTs cannot be made up. However, you may miss **up to three** RTs without penalty.

**PLEASE SHOW UP ON TIME for RTs.** It's a disservice to your group if they have to start without you. You will lose credit on an RT if you are late.

**(e) Canvas discussions (5% of your final grade).** On our Canvas page, there is a "Topics in Discrete Math" discussion that you will be asked to participate in every week or so. If you make meaningful, thoughtful posts to this discussion each week, you will get the full five points for the semester.

Postings to "Topics in Discrete Math" for a given week are due by 10 PM on the Sunday at the end of that week. You may miss **up to two posts** without penalty.

**(f) Participation and attendance (3% of your final grade).** Please come to class, on

time, and be attentive and engaged. I will take attendance on occasional, random days, and will take note of repeated absence or lateness. If you're frequently absent or late, your grade in this category will suffer. Points will also be deducted if you are physically, but not mentally, present, e.g. spending the class period on social media and whatnot. You will get the full three points for regular attendance and participation over the course of the semester.

Please see the "ADDITIONAL IMPORTANT COURSE INFORMATION" header on our Canvas home page, for:

- Guidelines for written assignments. Please read and follow these guidelines for written work, such as exams and discussion posts. You will lose points on written work if you stray too far from these guidelines!!

- Other general information, concerning: classroom behavior; acceptable use of AI; accommodation for disabilities, temporary medical conditions, and medical isolation; preferred student names and pronouns; the CU Honor Code; sexual misconduct, discrimination, harassment and/or related retaliation; religious holidays; and mental health and wellness.