BILL, RECORD LECTURE!!!!

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Welcome to CMSC 250: Discrete Structures
Today: Admin, Intro to Discrete Structures
Admin
Course Webpage:
Necessary Administrative

Course Webpage:

Course Zoom Site and Professor’s Office Hours Site:
https://umd.zoom.us/my/gasarch
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Course Zoom Site and Professor’s Office Hours Site:
https://umd.zoom.us/my/gasarch

Recitation Zoom Site and TA’s Office Hour Site:
https://umd.zoom.us/j/93347151584?pwd=NUZvUnpBYVdyS0RXNHhxM2ZFR1dRdz09
Necessary administrative stuff

- Course Website: We will post HW and Slides and Recordings and Notes there. (so we do not use Elms or Canvas).
- Gradescope: You will submit HW there.
- Gradescope: We will grade HW there.
- Regrade Requests due within a week of the HW being graded.
- Grades on Elms.
- Piazza is great for asking questions.
TA: Emily Kaplitz

- Her office hours and mine (on Zoom) are on course website.
- Her email and mine are on policy part of website.
What You Need For This Class

▶ CMSC 131 (First Prog Course), Good Numbering: 131 is for 1st Prog Course.
▶ Math 141 (Second Calc Course), Bad Numbering: 141 is for 2nd Calc Course.
▶ A love of mathematics. Or at least a like of mathematics.
▶ You are in some Honors Prog or have Permission from Dept.
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How to Get the Most Out of This Class

1. Read notes and slides before class. (Caution: Some of the slides are in progress. They will be labeled as such. You should not read those, they may contain fake news.)

2. Ask questions on Piazza and/or bring questions to class.

3. This course will be taped so you can catch up or review. However, coming to class has the following advantages:
   3.1 You can ask questions.
   3.2 If you miss class and don't watch the video before the next class, you could fall far behind.
   3.3 During COVID, it's good to do normal things (My Fall 456 students told me that one.)
   3.4 Recording might not always work (though this never happened in 456).
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HWs

- HWs most weeks.

Due Monday before recitation begins. But see next item.

Dead Cat Policy: Can submit HW Wed before recitation without penalty.

WARNING: YOU have an extension. HW solutions are posted Wednesday. So NO extensions past that.

We will keep track of your lateness NOT for grade, but for recommendation letters.
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What you say, what I hear:

You say
I thought it was due at midnight!

I hear
Oh, so you submitted it MONDAY at midnight, then realized that the Dead-Cat Policy saved you. You are telling me that you appreciate the Dead-Cat Policy!

You say
Oh, I forgot to hand it in on time but I can prove I did it on time because my computer time stamps my work.

I hear
Oh, so you forgot to hand it in MONDAY, then realized this, got it in on Wednesday before rec. You are telling me that you appreciate the Dead-Cat Policy!

I am not sure why you are telling me about time stamps, but, as the kids say, whatever.
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Textbook

**Required Text** None.

**Recommended Text** None.

**If you really want a text**

1. Essential Discrete Mathematics for Computer Science by Lewis and Zax. (Disclosure: Lewis was my PhD Advisor).

**Caveat** I won’t be following any of these texts.
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How to contact Prof or TAs

▶ Email: Please put “250” in subject line.

▶ Office hours (Bill-Tu & Th 12:30-1:45, Emily-Mo 10-11)

▶ Piazza

▶ We are around A LOT outside of office hours. Its not as though we’re going anywhere!
You are INVITED to talk to us

It has been said that some students do not seek help because they do not know they can.
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If *for whatever reason* you are falling behind in the class, or are having trouble with the HW, see us in office hours or *you can make an appointment to see us!*
Discrete Structures
Our Key question

Given a statement that you think is true, how to you establish that it is true?

1. In the Social Sciences:
   1.1 Statistics (e.g., Does the level of education for women correlate with a country's prosperity?) Need to control for other variables. And needs to be unbiased. And hard to know what-causes-what.
   1.2 Take a poll (e.g., Are you for or against gun control?). And again, needs to be unbiased.
   1.3 There are other ways as well.
2. In the Physical Sciences you can do controlled experiments.
3. In Mathematics we have the idea of proof! We can establish absolute truths in a way that neither Social Science or Physical Science can.
4. All of these fields are worthy endeavors if done right and honestly.
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Methods of Proof

1. Direct Proof. Take premises and use reasoning to get conclusion.
2. Indirect Proof or Contradiction. Assume OPPOSITE of what you want to do and get a contradiction.
3. Induction- too much to talk about in this intro slide. It does allow us to prove FOR ALL $n$ statements.
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Why is this Course Relevant for Computer Science?

1. Some parts of this course are directly relevant: Circuits, Cryptography, Reasoning about conditional statements.

2. Some parts of this course are indirectly relevant: We teach you how to reason about numbers and sets. This will help you reason about algorithms and programs.


4. This entire course will give you mathematical maturity which will serve you well in computer science and in life.
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   451: More Algorithms
   452: Theory of Computation
   456: Cryptography

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