

BILL, RECORD LECTURE!!!!

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Today:
Admin,
Ramsey Theory and Its
“Applications”

Admin

Necessary Administrative

Everything in these slides is also on the written syllabus on the course website.

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Course Webpage:

<https://www.cs.umd.edu/users/gasarch/COURSES/752/S26/index.html>

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1. Taught by William Gasarch. Tu-Th 12:30-1:45 in CSI 1121.
2. TAed by Javier Marinkovic.

Necessary administrative stuff

- ▶ Course Website: Will post slides, notes, and HW there.
- ▶ Elms: will post recording.
- ▶ Gradescope: you will **submit HW** there.
- ▶ Gradescope: we will **grade HW** there.
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IF you are auditing this class for whatever reason- perhaps you are having a hard time getting permission to take it, or perhaps you like the material but don't want to take it, let me know and I will put you on the class email list and invite you to join the Piazza.

How to Ask Questions

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In the open space around IRB 2136

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- ▶ Email us- put 752 in the subject line.

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- ▶ Appointments (possibly on zoom, possibly at night)

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- ▶ Ability to write proofs.
- ▶ There may be some short programming project. (This is **not** a course like **CMSC 412** where the project IS the course.)

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 - 3.1 You can ask questions.
 - 3.2 You don't fall behind.
 - 3.3 I sometimes use the whiteboard—not recorded.
 - 3.4 In Spring of 2025 recording failed 3 times. One was my fault, two were not my fault.
 - 3.5 There will be some in-class problems which count for the final grade.

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- ▶ There will be one in-class midterm, one take home final.

Dead Cat Policy In Action

What a student says I submitted HW **Thursday** at midnight thinking it was due then, and not at 12:30PM.

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Bill The HW was due **Tuesday** so I **already gave you an extension!**

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What a student says I submitted HW **Thursday** at midnight thinking it was due then, and not at 12:30PM.

Surely it can still count.

Bill The HW was due **Tuesday** so I **already gave you an extension!**

And stop calling me Shirley.

Homework: ChatGPT Policy

You can use **ChatGPT policy** but

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1. You must tell me that you did.

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6. This class is rather non-standard.

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The most common is that you both made some mistake that nobody else made. If we know this we can discuss and enlighten you!

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2. **Recommend** Make sure you understand what you are handing in.
3. If not you will crash and burn on the written exam.

Textbook

Required or Recommended Text None.

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For this course there will be notes, slides, and recordings of lecture.

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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!** Either in person or on zoom.

Why People Are Taking This Course-Part I

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Here is a sample of reasons and my comments on them:

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FINE, BUT I HOPE THAT YOU ALSO LIKE IT.

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Ramsey Theory and its “Applications”

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Thm For all functions $\text{COL}: \binom{[18]}{2} \rightarrow [2]$ there exists $A \subseteq [18]$, $|A| = 4$, such that $\text{COL}: \binom{A}{2}$ is constant.

Ramsey's Thm for 2-col Graphs $\forall k \exists n = R(k)$ such that the following happens: For all $\text{COL}: \binom{[n]}{2} \rightarrow [2]$ there exists $A \subseteq [n]$, $|A| = k$, such that $\text{COL}: \binom{A}{2}$ is constant.

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Van der Waerden's Thm for 2-coloring of \mathbb{N} For all k there exists $W = W(k)$ such that the following happens: For all $\text{COL}: [W] \rightarrow [2]$ there exists a mono k -AP.

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