

# CS 202: Discrete Mathematics

University of Virginia

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**Purpose:** to study discrete structures, including logic, sets, combinatorics, and proof techniques, with emphasis on applications and problem solving.

*the Mock Turtle said, "No wise fish would go anywhere without a porpoise."*

## **Outline:**

- Historical perspectives
- Logic and sets
- Functions and relations
- Asymptotic growth
- Cardinalities and infinities
- Proof types
- Counting
- Probability
- Graphs and trees
- Basic algorithms
- Computation models
- Uncomputability
- Applications

*"I didn't know it," the Knight said, a shade of vexation passing over his face.*

**Prerequisites:** Some programming background would be helpful.

**Textbook:** K. H. Rosen, Discrete Mathematics and Its Applications, McGraw-Hill.

**Suggested reading:** Polya, How to Solve it, Princeton University Press, 1971.

<b><u>Grading scheme:</u></b>	Midterm:	25%
	Final:	25%
	Homework:	25%
	Project:	25%
	Extra credit:	10%

- The homework assignments will be turned in and graded. Solutions will be reviewed in class, and also handed out.
- There will often be in-class extra-credit problems: participation in these would help your grade (although non-participation would not hurt your grade).
- Extra credit will also be given to the first finder of each mistake in my handouts and slides.

*"It seems a shame," the Walrus said, "To play them such a trick."*

### **Important Advice:**

- Please attend every class (much of the material builds on itself sequentially, so missing a class will hurt your ability to follow subsequent material).
- Please do not fall behind or procrastinate; "cramming" won't work in this class!
- Start on the project early (before mid-semester); you won't be able to do it in the last week!
- Please read your E-Mail often - it will be used as a primary means of notification.
- Please feel free to ask questions at any time; the TA and myself are here to help you.
- Important handouts (e.g., syllabus, slides, homeworks, exams, Q&A, etc.) will be posted on the class Web page at **[www.cs.virginia.edu/~robins/cs202](http://www.cs.virginia.edu/~robins/cs202)**
- TA office hours will be announced.

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