

# CS 240 : Introduction to Discrete Mathematics

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## Course Logistics

### Lectures

- **Lecture 1:** MWF: 9:55 am - 10:45 am, 1800 Engineering Hall
- **Lecture 2:** MWF: 1:20 pm - 2:10 pm, S413 Chemistry

### URLs

- **Canvas:** [canvas.wisc.edu](https://canvas.wisc.edu)
- **Piazza:** [piazza.com/wisc/fall12023/compsci240](https://piazza.com/wisc/fall12023/compsci240)
- **DvM readings:** [pages.cs.wisc.edu/~hasti/cs240/readings](https://pages.cs.wisc.edu/~hasti/cs240/readings)
- **zyBooks:** [learn.zybooks.com](https://learn.zybooks.com)

### Assessment

- **62% Exams :**
  - Exam 1 (20%): Monday, October 16th, 7:30 - 9:30 pm
  - Exam 2 (20%): Monday, November 13th, 7:30 - 9:30 pm
  - Exam 3 (22%): Tuesday, December 19th, 2:45 - 4:45 pm
- **30% Assignments :**
  - 14 assignments
  - written work, on-line quizzes, zyBooks Challenge Activities
- **8% Participation :**
  - zyBook Participation Activities (3%)
  - Additional Participation Activities (2%)
  - Discussion Participation (3%)

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## Course Overview

**discrete mathematics = mathematical study of discrete structures**

### discrete structures

- can be enumerated
- in Computer Science:

### Course goals

- become familiar with discrete structures (& related notions)
- develop your skills to reason rigorously

### Course content can be thought of as consisting of 4 parts:

- Part 1: Logic & Proofs
  - Part 2: Inductions & Recursion
  - Part 3: Graphs & Relations
  - Part 4: Intro to Combinatorics
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# Course Overview

## ***Part 1: Logic & Proofs***

- propositional & predicate logic
- set theory
- proof techniques

## ***Part 2: Inductions & Recursion***

- induction → show some property holds for all items in a discrete structure
- recursion – recursive programs & recursive definitions
- program analysis

## ***Part 3: Graphs & Relations***

- graphs & trees
- functions & relations
- graph theory
- finite state automata

## ***Part 4: Intro to Combinatorics***

- counting
- permutations
- combinations