

6.823 Computer System Architecture

Lecturers: Arvind, Joel Emer

TA's: Jae Lee

You must sign up for the course through the web

- The grade is based solely on *five, closed book, 1.5hr quizzes* (20% each) on five different sets of topics
- The first three quizzes will be held during the tutorials; the last two during the lectures.
- Grades are not assigned based on a predetermined curve but typically the distribution is 40% A's, 40% B's and 20% C or lower grade.

Tutorial on Fridays

- 1:00pm to 2:30pm
- Attendance is optional *but not quizzes*

Self evaluation take-home quiz

- Goal is to help you judge for yourself whether you have prerequisites for this class
- We assume that you understand digital logic, a simple 5-stage pipeline, and simple caches
- Please work by yourself on this quiz – not in groups
- Remember to complete self-evaluation section at end of the quiz
- Due at start of class next Wednesday

The Course Philosophy

- The emphasis in this course is on architectural mechanisms and not on quantitative performance evaluation.
- We will often look at developments from a historical perspective – how technology influences the design of machines

The course has 5 modules

Module 1

- Instruction Set Architecture (ISA)
- Simple Pipelining and Hazards
- Microprogramming

Module 2

- Caches
- Virtual Memory

Module 3

- Complex Pipelining and Reorder Buffer
- Branch Prediction and Speculative Execution

Module 4

- Symmetric Multiprocessors (SMPs)
- Memory Models
- Cache Coherence Protocols
- Synchronization

Module 5

- Vector machines
- VLIW, EPIC
- Multithreading
- Virtual machines