CS 2630
Computer Organization

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CS 2820 Computer Organization

- Computer Organization
  - Instructor: Steve Goddard
  - Lecture: 10:30-11:15 MWF, 109 EBP
  - Discussion 75 minutes, W240 AJB
  - Office hours: 9:00-10:45am TuTh
  - Office: 101E MacLean Hall
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- TAs:
  - ??

Textbook

- *Computer Systems: A Programmer's Perspective*
  - by Bryant and O'Hallaron, Prentice Hall, 2003

- *The C Programming Language, 2nd Ed*
  - by Kernighan & Ritchie, Prentice Hall

Course Overview

- The computer science goals of this course are to introduce the fundamental organization and structure of computer systems. Topics include:
  1. Computer systems (overview)
  2. Data representation
  3. Machine language
  4. Processor architecture
  5. Memory hierarchy
  6. Linking
  7. Exception control flow
  8. Virtual memory
  9. System level I/O
  10. Network programming
  11. Concurrent programming

Programmer Perspective

- Traditional Computer Organization courses are presented with a bottom-up approach.
- We will be taking a top-down approach, which reflects a “programmer’s perspective” of the way computer’s work.

Prerequisites:

- **CS 2210**
- **CS 2230**

Grading:

- Assignments 45%,
- Peer and instructor evaluation 5%,
- Bi-weekly (30 minute) Quizzes 25%, and
- Final examination 25%.
- Note: There will be no midterm!.

Grading

- **A minimum grade of C- is required for the course to count toward a CS major or minor.**
- **Letter grades will be assigned at the end of the semester, using the percentage of possible points, as follows:**

A+: 101+	A: 93-100	A-: 90-92	
B+: 87-89	B: 83-86	B-: 80-82	
C+: 77-79	C: 73-76	C-: 70-72	
D+: 67-69	D: 63-66	D-: 60-62	F: 0-59

Assignments

- Homework will be assigned approximately on a bi-weekly basis.
- Assignments will be a individual or team programming assignments, as specified.
- All assignments will be due at 11:59pm on the day on which they are due.
- Assignments will be submitted via your Git repository, and you will send an email to your Lab TA with the link, unless otherwise directed by your lab TA.

Programming

- Computing platform: Linux
- Computing language: C and Y86 Assembly
- Program correctness is assumed…

Quizzes

- Quizzes, given approximately every two weeks, will take the place of a midterm exam.
- Approximately 30 minutes in length.
- Format:
  - Brief explanation of concepts based on the reading assignment for pending lecture
  - Questions on material already discussed in class.

Late Homework

- Late homework is “OK” but...
  - Only if it’s not too late
  - You don’t miss class to get it done
  - You’re not late too often

Late Homework Details

- All homework submitted after its deadline is considered late.
- Assignments that are submitted within 24 hours after the original deadline are considered to be “one day late,” within 48 hours, “two days late,” *etc.*
- A late homework assignment will be accepted without penalty if the following conditions are met:
  - the total “lateness” of all homework assignments received to date (including the current assignment) does not exceed 4 days.
  - the student does not miss class on the day the assignment is due or on the day after the assignment is due. Exceptions to this requirement must be approved by the instructor in advance.
- The penalty for late assignments is 25% per day they are late.
- **Weekends count in evaluating the lateness of an assignment.**

How to get an “A” in CS 2630

- Attend class regularly
  - Ask questions!
- Read the book(s) and notes
- Do the homework
- Study!

How to get a “C” (or lower) in CS 2630

- Do not read the assignments in advance
- Assume getting copies of handouts is sufficient
- Don’t take notes in class
- **Miss class**
- Waste time playing on the Web

Course Conduct

- You may work in groups in *understanding* assignments,
- developing *approaches* and *strategies, and*
- *learning* to use the tools.
- You may not
  - develop joint solutions with other teams
  - share code between teams
  - copy anything
- All assignment solutions must be authored in full by your team!
- Individual assignments constitute a team of size one!

Summary

- We will study computer organization from the programmer's perspective:
  - This is a radical departure from the traditional method!
  - We will be learning how and why computers work the way they do, but with a top-down approach.
- Assignments will involve analysis and critical thinking.
- This course will be a lot of work.
- Hopefully, it will also be fun!

Welcome
and Enjoy!