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CSCI 210 Machine Organization and Assembly Language

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Machine Organization and Assembly Language  
CSCI 210

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Office hours/Personal Schedule: http://www.cs.xu.edu/~mikeyg/schedule14s.html

Schedule: Lectures are Tuesdays and Thursdays 1:00-2:15 in Schmidt 2.

Required Texts: Patterson and Hennessy, Computer Organization and Design: The Hardware/Software Interface; Revised 5/e, Morgan Kaufmann, 2014. 

Prerequisites: CSCI 170 (CS 1).

Course Objectives: This course will look under the hood of computers, covering the architecture and organization of computer hardware. Towards that goal we’ll look at the major components of a computer and how they work together to execute programs. We will also cover MIPS assembly language programming using an architecture simulator. Finally, by examining the factors which influence performance we will be able to compare various computer architectures.

Required Work: In addition to regular attendance of the lectures and staying current with the assigned reading there will be approximately 8-10 homework assignments. Some of these assignments will be programming assignments and the rest will be written/traditional paper and pencil style assignments.

Towards the end of the semester there will be three “special” assignments

- A final MIPS assembly project.
- A paper & an in-class presentation on an architecture of your choosing (with instructor approval). There will be more about this later but the basic idea is to apply the concepts learned in class to a specific architecture. NOTE: sometimes there is sufficient time for this assignment, and sometimes not.
- A paper relating the coursework to the course novel “The Soul of a New Machine.”

All assignments will be due at the beginning of class time on the announced due date, AND WILL BE COLLECTED AT THE BEGINNING OF CLASS. No late work will be accepted. It is recommended that you submit your best work on time than to give an answer to all the problems. If you cannot solve a problem
you should indicate as such and also provide some statement of what your ideas were, where you got stuck, and where you were hoping to take your ideas to.

**Exams:** There will be 2 non-cumulative midterm exams in addition to the cumulative final exam. The dates for the two exams will be announced at least 1 week in advance. The final exam is scheduled for Thursday December 18, 10:30-12:20. Use this date to make your travel plans accordingly.

**Attendance and Classroom Participation:** While there is no formal attendance policy, you are expected to arrive prepared to ALL course sessions. Furthermore you are expected to participate in the classroom discussions and activities to the best of your abilities. Given the difficult nature of the material and the interactive lecturing approach that will be used, it is difficult to envision a student missing and/or arriving unprepared to a number of the class sessions and still succeed in the course.

**Grading:** Grades on all assigned work and exams will be based on correctness, clarity and style; presentation counts. Your grade for the course will depend approximately 50% on the homework assignments. The three special end of semester assignments will together count for 15%. The two midterm exams will each contribute 10% and the cumulative final will contribute the remaining 15%.

The Department of Computer Science and Mathematics has adopted the following grading standards:

A: Exceptional. The student’s attainments are out of the normal course, unusual and special.

B: Good. The student’s performance is done rightfully or skillfully and is commendable.

C: Satisfactory. The student’s accomplishments are sufficient for the needs of the course.

D: Minimal passing.

F: Failure.

A more detailed explanation can be found at:
Also see http://www.cs.xu.edu/~mikeyg/CourseEngagementStandards.html for a description of the “Course Engagement Standards.”

**Exceptions to the Rules:** Almost all rules are designed to be broken under the correct set of extraordinary circumstances. It is strongly recommended that you communicate to the instructor at the earliest possible time any circumstances you feel warrant an exception (e.g. illness, religious holiday, personal and/or family crisis, etc.). Remember that going into hiding is probably the worst strategy you can adopt! There is a direct relationship between the amount of sympathy you can anticipate from an instructor and the amount of time remaining until a given assignment’s due-date. Finally, remember that if you are uncomfortable discussing something directly with an instructor (e.g. personal problems) you can always contact someone in the Dean of Students Office and have that individual contact the instructor.

**Honor Code:** Homework can be challenging – it’s where you find out what confuses you. You are strongly encouraged to discuss the homework with your classmates or with the instructor (and where appropriate, the math tutoring lab). In the end though, all work submitted must be your own. You must work out, write up,
create, or program your own solutions. Work you hand in must be conceived, created, and fully understood by you.

The best way to ensure this is to craft your solutions/answers/programs when you are by yourself rather than during your discussions with others. This will insure that your work is based on your own understanding rather than on that of your classmates. To do otherwise is a violation of the college’s policy on academic honesty and will be handled accordingly. Please refer to the rules described in the Student Handbook.

I encourage you to follow these two guidelines, stated on many course websites, but perhaps originating most recently at Duke University.

- **The Gilligan's Island Rule**: Essentially, the idea is that when you meet to discuss problems, it is fine to have a communal board or paper to work out your ideas, but this record should be destroyed at the end of the session. Then, everyone should spend at least thirty minutes doing a relatively mindless task (like watching reruns of a brainless show – e.g. Gilligan’s Island). This rule helps everyone be sure that the work they create truly represents their understanding of the material.

- **List of Collaborators**: If you discussed the problems with others, include their names in your writeup, either at the beginning or end of the problem, or in a section specifically designated as the list of collaborators. (If you have the same collaborators on all problems, a single listing is fine. If it varies by problem, list on a problem-by-problem basis.)

Remember, un-noted collaboration or any form of cheating will be dealt with harshly to protect the integrity of everyone involved.

Always remember:

**Don’t Panic**