

**Computer Science 240**  
*Computer Organization*  
Fall 2011

***Information about your instructor***

Instructor: Randy Shull  
Office: E120 Science Center  
Extension: 3102  
Office: Mondays 11:10 am -- 12:20 pm  
          Thursdays 8:30 am -- 9:40 am

***Overview***

In *CS111* we learn to view a program as a hierarchy of levels of abstraction. Details at one level may be abstracted away in order to solve problems at the next level up. The same technique may be used to study computer organization. Indeed, given the complexity of today's computer systems, it is hard to image how else we might approach the subject. For most computer scientists, the foundation of computer organization is digital logic level. However, we will start our studies one level up at the conventional machine level. Once we have understood the workings at this level we will return to the digital logic level to design the machines hardware components. Working through the hierarchy, we will spend roughly equally amounts of time investigating the micro architecture level, instruction set architecture level, the operating system level, and the assembly language level. There are levels above that, but you already started your studies of these levels in *CS111*.

***Prerequisites***

The only prerequisite is *CS111* (or by permission of the instructor). We will assume a familiarity with Java, although we will be programming only in assembly language. We will also assume a basic knowledge of elementary data structures such as arrays, stacks and queues. In addition, you should be comfortable with recursion. If any of this is unfamiliar or you have any questions, please come see me as soon as possible.

***Textbook***

The text this semester is *Computer Organization and Design: The Hardware/Software Interface*, written by David A. Patterson & John L. Hennessy and published by Morgan Kaufmann. Copies of these texts are available in the College Bookstore and are on reserve in the Science Center Library. Copies of the transparencies for course lectures will be distributed in class and will be available on the course website.

***Course Requirements***

*Problem sets:* During the term, there will be regular homework assignments.

*Midterm Examinations:* There will be two midterm examinations as shown in the syllabus. Please note these dates in your calendar. There will be no extensions without prior arrangement with the instructor. Open book, open notes.

*Final Examination:* There will be a comprehensive final examination at the end of the semester. Open book, open notes.

*Laboratory:* A three-hour laboratory meets every week of the semester. Each laboratory has associated lab report to be completed during the laboratory meeting time and a laboratory assignment to be completed outside of lab hours.

### ***Assignment Policy***

All assignments are due in class/laboratory on the due date announced when the assignments are distributed. Once graded homework is returned (usually on the class following the day the assignment was due), no further late work for that assignment will be accepted.

### ***Collaboration Policy***

I encourage you to talk with other students about the course and to form study groups. Unless otherwise instructed, feel free to discuss problem sets with other students and exchange ideas about how to solve them. However, I require that *you must compose your own solution to each assignment*. In particular, while you may discuss problems with your classmates, you must always write up your own solutions from scratch.

Please acknowledge and collaborative work. If you make use of an idea that was developed by (or jointly with) others, please reference them appropriately in your work.

When working on homework problems, it is perfectly reasonable to consult public literature (books, articles, etc.) for hints, techniques, and even solutions. However, you must reference any sources that contribute to your solution. Assignments and solutions from previous terms of CS240 are *not* considered to be part of the "public" literature. You must refrain from looking at any solutions from previous terms of CS240 (unless, of course, I explicitly tell you it's OK to do so).

### ***Grading Policy***

All assignments are weighted equally. The final grade will be computed as a weighted average of each of the following requirements described above. The relative weight of each component is:

Homework Assignments	20%
Laboratory Assignments	20%
Midterm Examination I	15%
Midterm Examination II	20%
<u>Final Examination</u>	<u>25%</u>
Total	100%