# How This Course Works - Computer Architecture

This document details the logistics of this course, including an abbreviated course schedule. For information on the books, grading, attendance, computer accounts, etc, see the Policy Statement. For information on assignments, see the Assignment Guidelines. The Course Syllabus details topics by week.

## HOW THIS COURSE WORKS

First, welcome to Computer Architecture. I could say a lot of wonderful things about this course, but it is best if you make your own decision. Material in this course is essential in any area of Computer Science where you must deal with lower-level operations of the machine. Only a select, well-paid few choose to make it their emphasis, but, all CS majors benefit from the background this course offers.

***This is an excellent course, but it is time-consuming. Plan accordingly.***

This course contains a huge amount of information. To save class time, keep us on schedule, and to limit student stress taking notes, material to supplement many parts of the text has been placed in lecture notes online. Class time is reserved for a summary lecture/demonstration, followed by an introduction to the current set of exercises on the topic and a lab session for individual or group work. In detail, here is how each week works:

- *prior to the beginning of class each week*, you must read the lecture notes for the week. You must also take a quiz online. This short multiple-choice quiz is designed to be fairly easy if you have read the material, and nearly impossible if you haven't.
  - The online quiz is available in the Moodle course shell for the class. **The close date for the quiz is on the hour before the start of class. (If class starts at 6:10, the quiz closes at 6:00)**
  - I highly suggest you complete the reading and the quiz well before your next class meeting - then post to the Google group and look over the exercises before class.
- come to the week's summary lecture/demonstration. The last hour of class is taken up by weekly labs or, monthly, by a midterm exam (quiz). The weekly lab sessions are part of the class and attendance is required. Depending on the week, attendance may be taken at the end of lab, or you may have to submit a file with your lab results to earn the lab points for that week. Make sure you have done what is required before you leave. Missed lab sessions cannot be made up.
- between classes, complete the exercises and review the reading material. Many of the exercise sets require you to submit a file of part of the exercises to get credit for the exercise set. It must be submitted before the meeting time for your section of the class the next week. *This submitted portion is simply a checkpoint to ensure you work on the exercises - all the exercises are assigned, whether they are submitted or not.* You must also work on the monthly assignments.
- use the class Google Group to discuss class topics. Regular posting and responding to the Google group earns extra-credit participation points at the end of the semester.

> ***It is imperative that you keep up with the material in this course. If they are done as assigned, the exercise sets, lecture notes, and assignments are manageable. If you procrastinate, it will be very difficult to catch up before the next midterm.***

***At all times I am here to help you. Do not hesitate to ask any question individually in office hours, in class, or on the Google Group. With the exception of posting significant parts of the solutions to the monthly assignments, any interaction on class topics, including exercises and quizzes is welcome on the Group.***

***If you are falling behind in the class, see me immediately.***

## COURSE MATERIALS

The most up-to-date schedule for this course is accessible from the Course Syllabus. A general guideline

is in the course shell on our online system at insight.ccsf.edu. Accessible versions of all documents are available on request.

The lecture notes for the course are meant as a companion to the course text by Patterson and Hennessy. Each module in the notes corresponds to one week of class. Class notes are available for about half the class. The remainder relies on the text only.

The exercise sets, which are also available using the online system (or the Course Syllabus) use data files that are available on our *hills* server. Some of the support programs must be run there - others, such as the Java simulator for MIPS, can be run on your own system. The location of data files for the course is discussed in the Policy Statement and in the exercises.

**Remember, read the lecture notes and take the online quiz *before* the class meeting**

## STUDENT LEARNING OUTCOMES

On completion of this course, you will be able to

A. Perform manipulations, conversions, and arithmetic at the machine level using various types of data including two's-complement integer, floating point, character and pointer data and their aggregates.
B. Create assembly language programs by translating familiar higher-level language constructs to assembly, and verify that the results function correctly.
C. Demonstrate how procedures and procedure calls are implemented in assembly language using a stack discipline.
D. Design simple sequential circuits using transition diagrams and state tables and plan their implementation using fundamental building blocks.
E. Design simple combinational circuits and use Boolean Algebra and standard circuit minimization techniques to simplify them.

(Actually, you will be able to do a lot more than this, but these are the revised program SLOs this semester.)