CSCI 222 Computer Organization and Machine Level Programming
Fall 2008
MWF 11:30 AM – 12: 40 PM, REEVE 212
(Lab TBD)

Instructor: Sun Chung
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Office: PPHAC 213, (610) 625-7786

Office Hours: MWF 9 – 10, TR 10 – 11, and by appointment

Course Description (from the Catalog): An introduction to classical internal organization of computers with emphasis on low-level (machine language and assembly language) programming. Topics covered include performance measures, low-level data representations, instruction sets, implementation of data path and control, memory organization and cache, and I/O organization. Laboratory work stresses low-level algorithm implementation on RISC processors. Prerequisite: CSCI 121.

Textbook: David A. Patterson and John L. Hennessy, *Computer Organization and Design, The Hardware/Software Interface*, 3rd edition (revised), Morgan Kaufmann, 2007. (required)

Goals include (adapted from p.9 of textbook):

"By the time you complete [the course], … you will be able to answer the following questions.

1. How are programs written in a high-level language, such as C or Java, translated into the language of the hardware, and how does the hardware execute the resulting program?

2. What is the interface between the software and the hardware, and how does software instruct the hardware to perform needed functions?

3. What determines the performance of a program, and how can a programmer improve the performance?

4. What techniques can be used by hardware designers to improve performance?"

Grading: Quizzes, Assignments & Labs   45
                 Midterm 1   15
                 Midterm 2   15
                 Final   25
                 Total   100

        Makeup tests will be given only for documented emergencies.

If you have disabilities, please let me know and I will do my best to provide you with adequate accommodations. In addition, please note the following policy of the College: "Students who wish to request accommodations in this class for a disability should contact Mr. Joe Kempfer, Assistant Director of Learning Services for Disability Support, 1307 Main Street (extension 1510). Accommodations cannot be provided until authorization is received from the office of Learning Services."

Attendance: I expect perfect attendance. However, if you have to miss class, you are responsible for all material covered that day, so be sure to check with someone in the class. If you miss a lab, you are expected to complete it within a reasonable amount of time.

Assignments: There will be a number of programming assignments. In addition, there will be problem solving homework. Some of the assignments will be done individually, and others in pairs or groups.   Programs must be handed in by 11:59 PM on the due date for full credit. A penalty of 25% will apply if the assignment is handed in the next day (and 50% for another day). After that, the assignment will not receive any points. A total of three grace days are given. A program must compile to be graded.

Academic Honesty: I feel very strongly that you do your own work. Copying another program will earn a zero for both the copier and the source. Merely changing the names of the variables or reordering a few instructions is not original work and will be considered a copy.

Legal ways to help others in the class include:

1. talking in general terms on how to design the program (not specific instructions).
2. helping extensively on "systems" questions (naming files correctly, using the compiler, printing out programs, etc.).
3. finding syntax errors.
4. debugging running programs (or crashing programs) by helping someone find the place where the error occurs and giving suggestions on how to fix the error. Giving suggestions means giving general ideas and does not include mailing your code, writing down instructions, or otherwise writing the program for your classmate.
5. acting as a tutor by showing someone a different example and working with them on solving a different problem.

The syllabus is subject to change.