

**CSE P548: Computer Architecture**  
**Autumn 2006**  
**Lectures: Thursday 6:30-9:20 EE1-037**

**Instructor**

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Office Hours: by phone, Tuesdays through Thursdays

**Course Material**

The purpose of this course is to give you a broad understanding of the concepts behind several advanced microarchitectural features in today's microprocessors and to illustrate those concepts with appropriate (usually modern) machine examples. We will cover the rationale for and the designs of strategies for instruction sets, dynamic branch prediction, multiple-instruction issue, dynamic (out-of-order) instruction scheduling, VLIW processors, chip multiprocessors, multithreaded processors, and dataflow machines. Some of these topics require some understanding from what is normally thought of as undergraduate material; for these, we'll briefly review that material, and then go on from there.

Lectures will be posted in our web area by 3pm the day of class. You would benefit from printing them out *in color* and bringing them to class.

**Reading**

This offering of P548 will be a reading and discussion course. Most reading assignments will be taken from *Computer Architecture: A Quantitative Approach* by John L. Hennessy & David A. Patterson, Morgan Kaufmann, 2003 or 2006. To get the most out of the lectures, read the material *before* topics are discussed in class. My lectures won't necessarily follow the same order of subtopics as the text and might take a different slant; I think you'll find that reading the nuts and bolts approach of the authors before class to be helpful.

There will also be some supplementary reading that you will be able to access from the course web pages.

**Class Discussion**

Since each class is a whopping three hours long, we will all live or die because of the quality of our discussions. So think about what you've read for the upcoming lecture before each class and come prepared to pose and answer questions, present your views of the architectural schemes we discuss, and offer alternatives.

**Schedule**

There is a weekly schedule in the course web area. The schedule will tell you what topics we will cover and when, what reading should be done before you come to a particular lecture, and when the final exam will be held. I'll be updating this schedule continuously, as I plan each lecture. Check it frequently, so that you can anticipate what material we'll be covering.

## **Exam**

There will be a short midterm and a longer final. Before you take them, we'll discuss their form and content, and I'll pass out a practice exam, so that you get a feel for the type of questions.

## **Grading**

Your grade will depend on how well you demonstrate your grasp of the material on the exams. Discussing the course content with fellow students is an effective way to learn the material, and is encouraged. However, the exam must represent your own mastery of the material.

## **Communicating**

We will communicate a lot through e-mail. You should use e-mail for asking and answering each others' questions – one of you might actually see the emailed question before I do. (But if you have questions that need a detailed or long explanation, it would be much easier to call during office hours.) Therefore you should register on the class mailing list **immediately**.

To add yourself to the class email list, you should visit:

<http://mailman.cs.washington.edu/mailman/listinfo/csep548>.

The list archives may be accessed via the very first URL on that page. The direct link is:

<http://mailman.cs.washington.edu/mailman/private/csep548>.