CS433: Computer System Organization
http://courses.engr.illinois.edu/cs433/
Prof. Josep Torrellas
Fall 2017

Fact Sheet

• **Instructor:** Prof. Josep Torrellas, email: torrella@illinois.edu, tel: (217)-244-4148, office: 4231 SC, office hours: Th 4-5pm or by appointment.

• **Teaching Assistant:** Jiho Choi, email jchoi42@illinois.edu, office hours: M 1-2pm, W 4-5pm, office: SC 0207.

• **Software Support:** We will use the Piazza newsgroup. Jiho will frequently check the newsgroup and answer questions. We will use the website http://courses.engr.illinois.edu/cs433/ to access the course slides, handouts, homeworks, etc.

• **Class:** Tu and Th, 11:00AM - 12:15PM in 1109 Siebel Center.

• **Prerequisites:** CS233 (Computer Architecture) or ECE390.

• **Credit:** Graduate students: 1 unit; undergraduate students: 0.75 units. Graduate students are asked to do extra work in each assignment. Graduate and undergraduate students are graded using two different curves.

• **Text:** "Computer Architecture: A Quantitative Approach", fifth edition, by Hennessy and Patterson. We will follow this book in class.

   To get another perspective on the issues, you can read "Parallel Computer Organization and Design" by Dubois, Annavaram, and Stenstrom, or "Modern Processor Design: Fundamentals of Superscalar Processors" by Shen and Lipasti.

• **Format:** I plan to use slides in class. You can access the slides from the course web site. I will try to put the slides in advance in the web site.

• **Assignments:** There will be six (6) written homeworks. See the schedule for assignment turn-in dates. Assignments will include extra questions for graduate students only (although undergraduates should check the solutions).

   Note that the assignments have only a modest weight toward the final grade. However, doing the assignments is a good way to prepare for the exams.

• **Exams:** There will be a midterm and a final exam. The final is comprehensive. Both exams are closed book and closed notes. Bring a calculator. The midterm will be in class (see the schedule). The final will be 8:00 a.m. Monday, December 18 (two hours).

• **Grading:** Final grades will be computed based on the following: midterm 35%, final 40%, homeworks 25%. Requests for regrading will be accepted up to one week after the return of graded assignments. Such requests must be accompanied with a written justification for why the score should change. **No late assignments will be accepted without**
prior arrangement. For assignments, it is legitimate for students to discuss possible interpretations of the assignment. However, once solution has begun, collaboration must cease. If students are found to have collaborated excessively, all involved will receive a grade of 0 for that assignment.

Typical grade distributions in the past have been: Graduate students (A 45%, B 50%), Undergraduate students (A 35%, B 35%). I give letter grades with + or - as well. Note that these distributions may change.

Note: Every year at the end of the semester, people come to my office asking for a change of grade (from C to B or D to C) to be able to graduate, not be put on probation, etc. My policy is never to change the grade for these reasons. Please plan ahead because I will not change the grade for these reasons.

• **Goal of the Course:** This is an advanced course in computer architecture that moves fast. You should not fall behind in your Hennessy and Patterson readings because you will find it difficult to catch up.

It is assumed that you already understand the basics of computer architecture, including:

1. Computer elements (logic, FSM, memory)
2. Assembly language programming (addressing, control transfers, procedure linkage)
3. Pipelines and pipelined instruction execution (instruction fetch, decode, execute, store..)
4. Basic machine organization (datapath, control, buses, memory interface, interrupts)

If you feel that your background is lacking in any of these areas, please consult an introductory computer architecture textbook such as "Computer Organization and Design: The Hardware / Software Interface", by Patterson and Hennessy.