

# Computer Organization Spring 2004

Instructor: Dave Hollinger

Web: [www.cs.rpi.edu/~hollingd/comporg](http://www.cs.rpi.edu/~hollingd/comporg)

Email: [comporg@cs.rpi.edu](mailto:comporg@cs.rpi.edu)

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## Why CompOrg?

- Basic understanding of how computers work.
- Gentle introduction to Unix and C programming.
- Assembly Language programming
- Understanding Memory and I/O (these can have a large impact on performance).

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## Some Topics

- Data and Program Representation
- Instruction Set Architecture/Assembly Language Programming
- C Programming
- Logic Design & Processor Architecture
- Memory Hierarchy & Virtual Memory
- Performance

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## Grading

- Lab: 10% (one point each)
- 2 Midterm Exams: 15% each
  - Thursday October 3<sup>rd</sup>
  - Thursday November 21<sup>st</sup>
- Final Exam: 25% *comprehensive final*
- Homework: 35%
  - a few large “projects”
  - a number of smaller assignments

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## Grading

- Grade appeals must be resolved within 7 days (after you receive a grade)!
  - First appeal is to the grader (often a TA).
  - See Dave only after you have talked to the TA that assigned your grade.

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## Homework

- Unless stated otherwise, homework must be done individually!
  - some of the large projects might be done in groups – this will be announced.
- Any duplicate or near duplicate submissions will result in a *minimum* of a 2 letter grade drop from the final course grade and may result in failure for the entire course.

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## x86 Unix Environment

- You will be given a remote-access account on CS Unix machines
- Other options:
  - RCS public Linux machines.
  - Linux/BSD on your own computers.
  - Cygnus tools (for windows) might also be useful.

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## Lab

- There will be about 12 labs, you can get credit for up to 10 of them (1 point each).
- Laptops required! (but only for remote access to CS Unix accounts).
- Each lab meeting will involve one or more exercises.
- Boolean grades (yes/no).
- Undergraduate TAs will help out in lab.

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## Lab Topics

- Unix skills
- C programming
  - data structures, data types, etc.
- Assembly programming and C to assembly conversions.
- Performance evaluation (benchmarking, memory measurements, timing, etc).

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## Important!

- Lab component is new this semester.
  - many students felt this would be very helpful!
- Let Dave know whether lab is working for you!
  - In general, lab exercises are designed to be quick and easy if you already know the material, and a learning experience if you don't.

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## Textbooks

- Computer Systems book is required!
  - some assignments from the book.
  - focus on the issues that effect programmers
  - Intel X86 assembly language
  - Somewhat Unix oriented
- K&R C programming book is suggested if you have not used C.

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## Lectures

- I'll try to keep lectures to 90 minutes.
- Cover material from the book
- Demonstrations
- Discussions
- Dave's dorky videos @copyright 2002 DLH enterprises
- Review (Tuesday lecture before each midterm will be a review session)

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## Lecture Notes

- Lecture notes will be available on the course web site:
  - Some lectures will be powerpoint, these files will be available on the course web site.
  - For other lectures there will be a lecture outline made available on the course web site.
- We will be following the book pretty closely, so the book is your best resource.

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## Schedule

- The Syllabus includes a topic and reading list.
- The order will be as shown, but the dates will probably change a little.
- The test dates will not change!
- Homework schedule will be made available on the course home page within a few weeks.
- Lab meetings start next week (Jan 21<sup>st</sup>).

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