Introduction to 15-410

Dave Eckhardt
de0u@andrew.cmu.edu

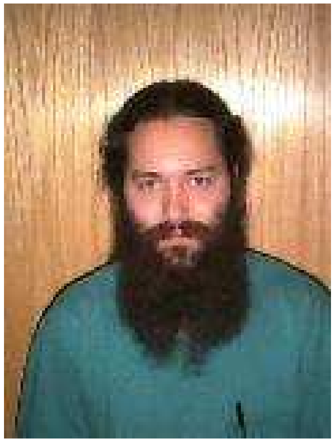
Synchronization

- Textbook
  - Operating System Concepts, 8th edition (or 7th)
    - Silberschatz, Galvin, & Gagne
  - CMU Bookstore should have copies of text
- If you plan to add, please do so *today*
  - If you're not on my list, you have a ***0%*** chance at a seat
- Self-assessment exercise?
  - Not mandatory if you did well in 15-213
  - A very good sanity-check, though

Outline

- People
  - Me, us, you
- Administrative information
  - Academic conduct
- Class goals
- Reading material

Dave Eckhardt



- Buzzword compliance
  - Ph.D., Computer Science, CMU, May 2002
    - "An Internet-style Approach to Managing Wireless Link Errors"
  - http://www.cs.cmu.edu/~davide
- Building Unix kernels since ~1985
  - PDP-11, Version 7 Unix
  - "Not really a BSD bigot"

TA's

- Repeat offenders
  - Joshua Wise
  - Jacob Potter
  - Sean Stangl
  - Matt Schnall
  - Ben Blum
- New!
  - [TBD]

TA's

- As a team
  - Strong background
  - Here to help!

Yinz - Background

- Junior/Senior/other?
- CS/ECE/INI/other?
- Group programming before?
- Done a branch merge before?

Yinz - Reading

- Read a Ph.D. thesis?
- Academic journal article?
- Attended an academic conference?
- Read a non-class CS book last semester?

Yinz – Career plans

- Industry
- Graduate school
- Law/med/business school?
- Mountain top?

Information sources

- Web site http://www.cs.cmu.edu/~410
  - You are ***required*** to read the syllabus
- Q: Can I use a linked list for ...?
  - A: academic.cs.15-410.qa
  - Reading this will be to your benefit
- Q: Important announcements from course staff...?
  - A: academic.cs.15-410.announce
  - ***You are responsible for reading this often***

Information Sources

- Q: I have a final exam conflict...
- Q: The license server is down...
- Q: AFS says “no such device”...
  - A: staff-410@cs.cmu.edu

Health Problems

- ***Somebody*** will probably get mono or pneumonia
  - If not, only because of something more creative
- Work-blocking health problem?
  - Go ***early*** to Student Health (etc.)
  - ***Avoid*** “For the past two weeks I dragged myself to class but couldn't focus on programming”
  - Try to get paper documentation of work restrictions
  - Your program administrator will inform instructors
    - CS: cathyf@cs ; ECE: jmpeters@ece / elaine@ece ; ...

Academic honesty

- See syllabus
- Learning is good
  - ...practices which avoid learning are ***double-plus ungood***
- Plagiarism is bad
  - ...credit ***must*** be given where due
- “Outside code” is not just one issue
  - See syllabus (this is not optional)

Academic conduct

- Being a partner
  - Responsible
    - I am writing three grad school applications next week
  - Irresponsible
    - [vanish for 1 week, drop class]

The deadline disaster

- “If you wait until the last minute, it takes only a minute!” -- Vince Cate
- Small problem
  - Your grade will probably suffer
- Big problem
  - ***Learning*** and ***retention*** require sleep
  - Why work super-hard only to forget?

Course Goals

- Operating Systems
  - What they are
  - Design decisions
  - Actual construction
- Team programming
  - Design, documentation
  - Source control
  - People skills

Course Plan

- Lectures
  - ***Many*** topics will be covered by text
  - But skipping every lecture will challenge your grade
    - The map is not the terrain, the slides are not the lecture
    - You will miss Q&A
  - We expect you to attend lectures
    - Details: see syllabus

Course Plan

- Projects
  - “Stack crawler” - readiness check ***[1-person project]***
  - Bare-machine video game ***[1-person project]***
  - Thread library
  - OS kernel
  - Kernel extension
- Project environment
  - Wind River Simics™ PC simulator
  - Can also run on real PC hardware

Course plan

- Homework assignments
  - ~2, to deepen understanding of selected topics
- Reading assignment
  - Pick something fun, write a ***brief*** report
- Mid-term, Final exam
  - Closed-book

Team programming

- Why?
  - ***Not*** for instructor's convenience!
  - Allows attacking larger problems
  - Teaches ***job skills*** you will need
    - Very few “individual contributor” jobs, even academia
- Team programming != “software engineering”
  - No requirement analysis
  - No release staging, design for growth, ...
  - Not a complete “life cycle”

Team programming - people skills

- Working with other people is ***hard***
  - People think differently
  - People plan differently
- Pre-planning
  - Agree on work style, arrangements
    - Setting milestones
    - Pre-scheduled common time slots
- Handling problems
  - Involving “management” before it's too late
    - See syllabus

Grading philosophy

- C – all parts of problem addressed
- B – solution is complete, stable, robust
- A – excellent
  - Somebody might want to re-use some of your code
- Numbers
  - A = 90-100%, B = 80-90%, ... (roughly)
- “Curving”? Maybe, not necessarily
  - Lots of A's would be ***fine with us***
  - ***But this requires clean, communicative code!***

Closing

- comp.risks newsgroup
  - Developers should read this
  - Managers should read this
  - Journalists should read this
- Textbook
  - Chapters 1, 2
  - Chapter 13.1, 13.2, 13.3.3
- ***Start choosing a partner for P2/P3***

Further Reading

- Sleep to Remember
  - Matthew P. Walker
  - American Scientist, July/August 2006
  - “The brain needs sleep before and after learning new things, regardless of the type of memory. Naps can help, but caffeine isn't an effective substitute.”