Introduction to 15-410/605

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Wait List

• Registrar's wait-list order is irrelevant
  – He has his ordering, we have ours
  – We admit based on readiness (mixed with need)
  – Usually our estimate centers on your advisor

• There may not be room for everybody
  – Some students may need to try again next semester

• If you're not on the wait list yet, you are invisible
  – Invisible students definitely won't get into the course!
  – If you are invisible, send mail before noon today
Wait List

- Background material (15-213) *is not optional*
  - M.S. students: take 213 and get an A (B *may* be ok)
  - Ph.D. students: have your advisor contact me
- Rare exceptions exist
  - Took a course with the 213 textbook – see me
  - Multiple years of specific industry experience – consult your advisor (today)
- Otherwise, please switch to 213 wait list instead
  - In some cases 213 may not be enough – consult advisor
Wait List

- **ECE**
  - Undergraduates: All in, I think?
  - M.S.: There is reason to hope, but not certainty
- **INI**
  - There is reason to hope, but not certainty
- **Others?** *I must hear from your advisor!*
- **If you are on the wait list, you must read your e-mail!!!**
Logistical Query

• Who had trouble with 213?
  – Contact me after class (potential for big trouble)
  – *If you didn't get a B or an A, see me*
  – *If the malloc() lab didn't go well, see me*
Self-Assessment

• Self-assessment exercise on course web site?
  – Not mandatory if you did well in 15-213
  – A very good sanity-check, though!
Textbook (traditional)

• Option 1
  – Operating System Concepts, 9th edition
    • Silberschatz, Galvin, & Gagne

• Multiple “cheap” options exist!
  – eBay/Amazon/Alibris/...
  – If you try an e-book edition instead of paper, please tell us if you like it
  – Used copies of 8th edition work pretty well
    • Web site lists reading assignments for 6th through 9th editions
Textbook (experimental)

- Option 2
  - Operating Systems: Principles & Practice
    - Anderson & Dahlin
- Main differences
  - More focus on typical modern kernels and hardware
  - Less focus on historical systems
  - Stronger coverage of file systems and storage
  - Weaker coverage of security
Textbook (which one?)

• We think you can use either one
  – Heavily-tested material is typically covered in lecture and projects

• We are interested in your opinion!
  – Which one, physical book vs. e-book, e-book purchase vs. rental...
  – We will ask for your thoughts at the end of the semester
Outline

• People
  – Me, us, you

• Administrative information
  – Academic conduct

• Class goals

• Reading material
Dave Eckhardt

- Teaching Professor, CS
  - Ph.D., Computer Science, CMU, 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”
Dave O'Hallaron

- Professor, CS and ECE
  - Ph.D., Computer Science, Univ. VA, 1986
    - “Models for Concurrent Programming”
    - http://www.cs.cmu.edu/~droh
- Research: High-Performance Computing
- Former director, Intel Labs Pittsburgh
- Co-creator of 15-213
- Co-author (with Randy Bryant) of “Computer Systems: A Programmer's Perspective” (3rd ed.!)
TA's

• Mixture of “repeat offenders” and “this year's model”

• As a team
  – Strong background
  – Here to help!
Yinz - Reading

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

Web site http://www.cs.cmu.edu/~410
  – You are *utterly required* to read the syllabus

Q: Can I used a linked list for...?
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
Information Sources

Q: I am experiencing [delicate situation X] ...
A: e-mail to faculty

Note: most likely no Piazza this semester
  – Experiment was run in a previous semester
  – Results equivocal
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 many lectures *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
  – Your projects 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?
  – Allows attacking larger problems
  – Teaches *job skills* you will need
    • Setting milestones
    • Setting up a productive work flow
    • Involving “management” before it's too late

• Team programming != “software engineering”
  – No requirement analysis
  – No release staging, design for growth, ...
  – Not a complete “life cycle”
Health Problems

- **Somebody** will probably get mono or pneumonia
  - If not, only because of something more creative
- **Work-blocking health problem?**
  - Go *early* to University 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 staff will inform instructors
    - CS: Cathy/Mary; ECE: Janet/Vickie/Jillian/Nesli
Partner Problems

- *Somebody* will have serious partner trouble
  - You need to “involve management” early
    - Sometimes (50%) we can fix the problem
    - If the problem can't be fixed, we can reduce the fallout
      - ...only if we know while the trouble is happening
    - *Don't* “buffer up” partner trouble until the last week of classes
      - At that point, we basically can't help
  - Details: see syllabus
Academic honesty

• See syllabus!
  – Reading the syllabus on this topic is not optional

• Learning is good
  – ...practices which avoid learning are double-plus ungood

• Plagiarism is bad
  – ...credit must be given where due

• “Outside code” is not a simple yes/no issue
  – You must not read any outside code without carefully consulting the syllabus
Academic conduct

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

• “RISKS Digest” (en.wikipedia.org/wiki/RISKS_Digest)
  - Developers should read this
  - Managers should read this
  - Journalists should read this

• OSC textbook
  - Chapters 1, 2; Chapter 13.1, 13.2, 13.3.3

• OS:P+P textbook
  - Chapters 1, 2; Sections 3.0, 3.5; Section 11.3

• Start choosing a partner for P2/P3