

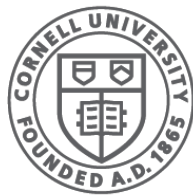
Administrivia

CS 4410

Operating Systems

Fall 2018

Professor Van Renesse



Cornell CIS
COMPUTING AND INFORMATION SCIENCE

[R. Agarwal, L. Alvisi, A. Bracy, M. George, E. Sirer, R. Van Renesse]

How this class is organized

- Who's Who
- Before you take this class...
- Lecture
- Getting Help
- Grades & Policies

Who am I?

- Ph.D. C.S., Vrije Universiteit Amsterdam
 - Amoeba Distributed Operating System
- Industry: Research Scientist @ AT&T Bell Labs
 - Unix, Plan 9
- Chair ACM SIGOPS, ACM Fellow
- member/coach Original Cornell Syncopators

Interests: scalable and fault tolerant distributed systems

Non-geek: musician, unicycle, dance

Who are the TAs?

Who are you?

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Prerequisites

- CS 3410, CS 3420 or equivalent required
- **Otherwise:** you must contact the instructor, explain your situation and request permission.

Required Textbook

OPERATING SYSTEMS THREE EASY PIECES

REMZI H. ARPACI-DUSSEAU
ANDREA C. ARPACI-DUSSEAU
UNIVERSITY OF WISCONSIN-MADISON

- Free online
- Buy a PDF or a printed version

Lectures

- Tues/Thurs 2:55-4:10pm, Uris G01

- Electronics policy

- ***No cell phones anywhere, ever***
- No laptops (except occasionally)
- Studies show that such classrooms without laptops are far more effective



- Please ask questions!
- Save private discussions for later



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 - Office Hours
 - Online Tools
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Office Hours

- Professor Van Renesse:
 - Mon 11-noon, Wed 2:30 – 3:30
 - Gates 433
- Course Staff
 - Lots of great TAs this semester (website)
 - OH weekdays 10am-10pm-ish

Online Resources

Webpage: <http://www.cs.cornell.edu/courses/cs4410/>

- Schedule, exam & due dates
- Lecture notes
- Mostly static

Github for code: <https://github.coecis.cornell.edu>

CMS for assignments: <https://cmsx.cs.cornell.edu>

- Autogrades, Grades, & Regrades

Gradescope for exams

- Grades & Regrades

Online Help

Web page

Piazza

- For 99% of the communication
 - Private posts should be visible to *all* course staff
 - Do not contact staff by other means (FB, texts, *etc.*)
- For help with assignments, concepts

cs4410-staff@cornell.edu: **time sensitive** matters

- Goes to Professor Van Renesse & staff leads

cs4410-prof@cornell.edu: **sensitive** matters

- Goes to Professor Van Renesse

Please no emails to personal email accounts

Other Resources

Engineering Advising	www.engineering.cornell.edu/resources/advising	Academic advising for engineering students
Arts College Student	www.arts.cornell.edu/stu-adv/	Listing of general support services for a variety of concerns
Gannett	www.gannett.cornell.edu	Cornell University Health Service
CAPS	www.gannett.cornell.edu/services/counseling/caps	If you experience emotional distress, please contact Counseling and Psychological Services
Student Disability Services	sds.cornell.edu	Ensures that all aspects of student life are accessible, equitable, and inclusive of those with disabilities. Send accommodation letters to Veronica VanCleave-Seeley (vv48, Gates 401) by Feb 15.

Email cs4410-prof@cornell.edu

Get help. Get documentation. The earlier the better.

Also, please look out for each other

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Course Content

Three Components

1. Lectures and Readings
2. Exams
3. Assignments

You are expected to keep up with all three

Draft Syllabus

- Introduction
 - Architectural Support for OSs
 - Processes and Threads (A1)
 - Synchronization (A2)
 - Deadlocks
 - Scheduling
 - Memory Management
-

- Virtual Memory (A3)

10/4: Prelim 1

- File systems
 - Security
 - Networking
-

- Distributed Systems
-

11/20: Prelim 2

12/10 Final Exam

Grading Policies

Late Policy

- Each person has a total of **4** “Slip days”
- **Max of 2 slip days** for any assignment
- Cannot ever submit later than 48 hours late
- I really do not budge

Regrade policy

- Within 1 week of assignment (or exam)’s return

Homework

- 3 programming assignments
 - build a “shell”
 - “easy” synchronization problems
 - “hard” synchronization problems
- 4 or so reading assignments
 - easy but seminal papers in systems
 - together counts as much as a programming assignment

Practicum: CS4411

- Little programming in CS4410
- In CS4411, you're going to have hands-on C development experience with an almost-real operating system: EGOS
 - Write a queue
 - Write a threading package
 - Write a scheduler
 - Write a file system cache
 - Write a file system
- Teams of two programmers

Semester Grades

40%	Assignments, 10% each
55%	Exams (best 2 of 3)
5%	Altruism Points

- Goal is to give everyone an A
- Help us achieve this

Altruism Points

Once this semester, contribute to the education of your fellow class members

Examples (be creative!):

- **Helpful & Thoughtful** post on piazza
- Elite Piazza answerer
- Make a video that explains a concept
- **Good explanation** of a practice exam question
- Share code that illustrates a cool concept
- Research something left unanswered
- use `alt` tag on piazza when possible

Academic Integrity & Honor Code

Closed-book exams, no calculators/phones

All submitted work must be your own

- OK to discuss concepts together
- White/black board rule (work, erase, wait, code)
- Cannot be in possession of other's solution
- Do not look at code that is not yours
 - a friend's or online

Violations will be prosecuted

First reading assignment

- Due next week
- Write 200-300 word report
 - what did you like/learn?
 - what did you dislike (or didn't understand)?

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THE BELL SYSTEM TECHNICAL JOURNAL
Vol. 57, No. 6, July-August 1978
Printed in U. S. A.

The UNIX Time-Sharing System†

by D. M. RITCHIE and K. THOMPSON
(Manuscript received April 3, 1978)

UNIX is a general-purpose, multi-user, interactive operating system for the larger Digital Equipment Corporation PDP-11 and the Interdata 8/32 computers. It offers a number of features seldom found even in larger*