CSE 506: Operating Systems

Introduction
Today’s Lecture

- Course Overview
- Course Topics
- Grading
- Logistics
- Academic Integrity Policy
- Homework #1 (of 1)
- Quiz #1 (of 1)
- Key concepts from Undergrad Operating Systems
Course Overview (1/3)

• Caveat 1: I’m new here.
• Caveat 2: This is a new course.

• Operating Systems are the *software* that *managers* computers’ *resources*
Course Overview (2/3)

• Ever wonder what the OS does, anyway?

• Operating System is an umbrella term
  – *Kernel*: resource manager
  – *Standard Libraries*: APIs to interface with the kernel
  – *Utilities*: tools to work with system

• This course is mostly about the *kernel*
  – What’s inside the kernel
  – What interface this presents to libraries and software
Course Overview (3/3)

• This course is hard, roughly like CSE 502
  – In CSE 502, you learn what’s inside a CPU
  – In CSE 506, you learn what’s inside an OS

• This is a project course
  – Learn why things are the way they are, first hand
  – We will build an operating system
  – If you don’t know C, you need to learn it quickly
  – If you do not work hard on the project, you will fail
Course Topics

• Intro/Review
• What Software Expects of the OS
• What Hardware Provides to the OS
• Virtual Memory
• Scheduling
• Storage
• Networking
• Multi-threading
• Multi-processing

Will devote most time to items in bold
Grading (Standard Option)

<table>
<thead>
<tr>
<th>kk</th>
<th>Due Date</th>
<th>Points</th>
<th>Grading</th>
<th>Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Quiz</td>
<td>Today</td>
<td>0</td>
<td>Curve 0 to 100</td>
<td>Yes</td>
</tr>
<tr>
<td>1 Homework</td>
<td>Nov 1</td>
<td>20</td>
<td>Curve 0 to 100</td>
<td>No</td>
</tr>
<tr>
<td>1 Warm-up Project</td>
<td>Sep 26</td>
<td>10</td>
<td>All or nothing</td>
<td>No</td>
</tr>
<tr>
<td>1 Course Project</td>
<td>Last class</td>
<td>100</td>
<td>See below</td>
<td>Yes</td>
</tr>
<tr>
<td>1 Final</td>
<td>Last class</td>
<td>30</td>
<td>Absolute value</td>
<td>No</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
<td>10</td>
<td>Curve 0 to 100</td>
<td>No</td>
</tr>
</tbody>
</table>

**Course Project Points**

<table>
<thead>
<tr>
<th>Course Project</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>Cooperative OS</td>
<td>50</td>
</tr>
<tr>
<td>Preemptive OS</td>
<td>60</td>
</tr>
<tr>
<td>Preemptive OS w/ File System</td>
<td>70</td>
</tr>
<tr>
<td>Preemptive w/ File System and Network</td>
<td>80</td>
</tr>
<tr>
<td>Multi-processor OS w/File System and Network</td>
<td>90</td>
</tr>
<tr>
<td>Multi-processor OS w/File System and Network and Thread Support</td>
<td>100</td>
</tr>
</tbody>
</table>

Without curve, need 100 points to get an A
Grading (Research Option)

• If you are...
  – Pursuing a PhD
  – Pursuing an MS thesis
  – Taking or Planning to take 523/524 with me

• You may select a research option for the grade
  – Only available with instructor’s approval

• When selecting this option...
  – Must work alone on everything
  – Attain at least 60 points of the Standard Option
  – Grade will be based on subjective research progress

Note: Of the two, this is the harder option
Logistics (1/4)

• Project milestones
  – There are *no* official project milestones
  – If *you* need milestones, send me a milestone schedule
    • I will deduct 5 points for each milestone you miss

• Books
  – Operating System Concepts
    by Silberschatz, Galvin, Gagne (tried and true)
  – Operating Systems: Principles and Practice
    by Anderson and Dahlin (beta)
  – The C Programming Language
    by Kernighan and Ritchie (if you aren’t a C guru)
Logistics (2/4)

• Working in groups
  – Permitted on everything except Quiz and Final
  – Groups may range in size from 1 to 75 people
    • Points deducted on group work are multiplied by group size
    • Permission of instructor is needed for group size greater than two

• Attendance
  – Optional (but highly advised)
  – No laptop, tablet, or phone use in class
    • Don’t test me - I will deduct grade points
Logistics (3/4)

• Blackboard
  – This will be my second time using it, don’t expect much

• Course Mailing List
  – Subscription is **required**

• Quiz
  – Completion is **required**
  – If you missed the 1\textsuperscript{st} class, come to office hours for it
Logistics (4/4)

• Wait list is currently full

• Grad students often over-enroll
  – Space likely to open up in first week
  – If you want in, keep showing up for a few lectures

• Worst case: Prof. Zadok teaching 506 in the spring
  – Likely to be offered every semester going forward
Academic Integrity Policy

• Probably different from other classes
  – Much more open, but much more strict
  – Resembles the “real world”

• Actual Policy:
  – All submitted work must have an explicit Copyright label containing your name.
  – All submitted work must have an explicit license.
  – All Copyright laws of the United States must be respected.
Copyright Example 1

- Copyright © 2013 by Mike Ferdman. All rights reserved.
Copyright Example 2

• Copyright © 2013 by Mike Ferdman. Permission to copy and distribute verbatim copies permitted.
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Questions?