CMPS 311

Operating Systems

Course Objectives

- Programming with Processes and Threads
- Evaluating and Analyze Scheduling, Synchronization, and Deadlock Algorithms
- Understand the design of Memory Management and Paging Systems
- Understand the design of File Systems
- Evaluate and Analyze Security issues within an OS

What this course is *not*

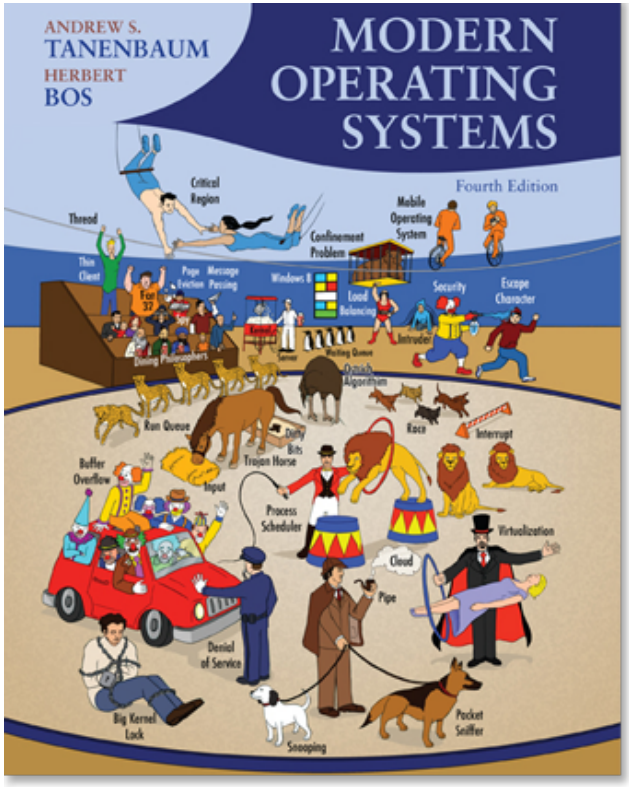
This is about the **design** of operating systems

- Its not about learning to *use* an operating system
- Its not about administering an operating system
- Its not a comparison of operating systems - we'll focus more on commonalities, not the differences.

Textbook

- Modern Operating Systems
  - Andrew Tanenbaum
  - Herbert Bos
  - **4th Edition**

- We will make heavy use of book - you need to buy it!



Using the Textbook

- This is **not** primarily a programming course
- This is a **concept** course
- I expect you to read the textbook carefully ***before class***. The concepts are difficult - and you'll find the lectures extremely confusing if you are unprepared.

This is **not an introductory course!**

Programming Environment

- Operating System programming is typically done in C (and a little C++... sometimes)
- We'll cover C - with the expectation that you already know C++ extremely well
- We will do our programing in the POSIX environment
  - This means if you use Windows, you need to install Linux
  - Mac OS X users - you're all set already.

Linux

I'll cover this in more detail in the coming lectures… but for now:

If you are running Windows you can:

1. Dual Boot (use Ubuntu or Linux Mint)
2. Run Ubuntu or Mint in a Virtual Machine (Virtual Box)
3. Setup a smaller VM called Vagrant (recommended)

How you ask?

You are expected to read the course's website/syllabus carefully

- http://pages.ramapo.edu/~sfrees/courses/cmps311/
- Its also linked to from Moodle
- I have provided **detailed** instructions on setting up Vagrant.

Programming

- Programming is used to *reinforce* the concepts we are learning
- It will be critical that you are programming in the correct environment - so you need to **pay attention to directions!**
- You will also be expected to **learn on your own**. There will be many OS function calls that you'll need to call in your programs - and I won't cover them all in class!

Homework

- There will be (around) 7 homework assignments
  - Blend of written + programming
  - Homework is worth a ***total*** of 10% of your grade
  - All homework will be submitted through Moodle
  - 10 points per day late, maximum 5 days late.

Exams

We will have 3 exams (plus the Final)

- September 24th - Chapters 1.1 - 2.2
- October 15th - Chapters 2.3 and 2.4
- November 9th - Chapter 3
- Final Exam covers Chapter 1-6 + parts of Chapter 9

Each exam is worth 20% of your final grade

The final exam is worth 25%

Exams

Exams are:

Closed book.

Closed notes.

Closed computer.

I will allow you to bring in one sheet of notes (double sided).

You will have the entire class period to complete them.

Written Requirement

- This is a **writing intensive (WI)** course
- You will have a 10 page paper due at the end of the semester
- Don’t worry about it just yet - I will discuss further in mid-October.
- It is worth 2.5% of your grade.

Attendance and Participation

I measure your attendance not by your physical presence…

- Random short quizzes on reading material
- Participation and Alertness

Simply showing up to every class, only to sleep or watch YouTube will result in a poor attendance grade.

For next class

Please read Chapter 1.1 - 1.5

… please take the hint.

Class Participation

- Your participation **makes** this class.
- Operating systems can be a really interesting topic - because you are learning about something you use **every day**.
- The class is about **design** of Operating Systems - and there are often no perfect answers - which lends itself to discussion!
- Ask questions, we have time!

Contact Information

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Email is the best method of contact