



CST 334: Operating Systems

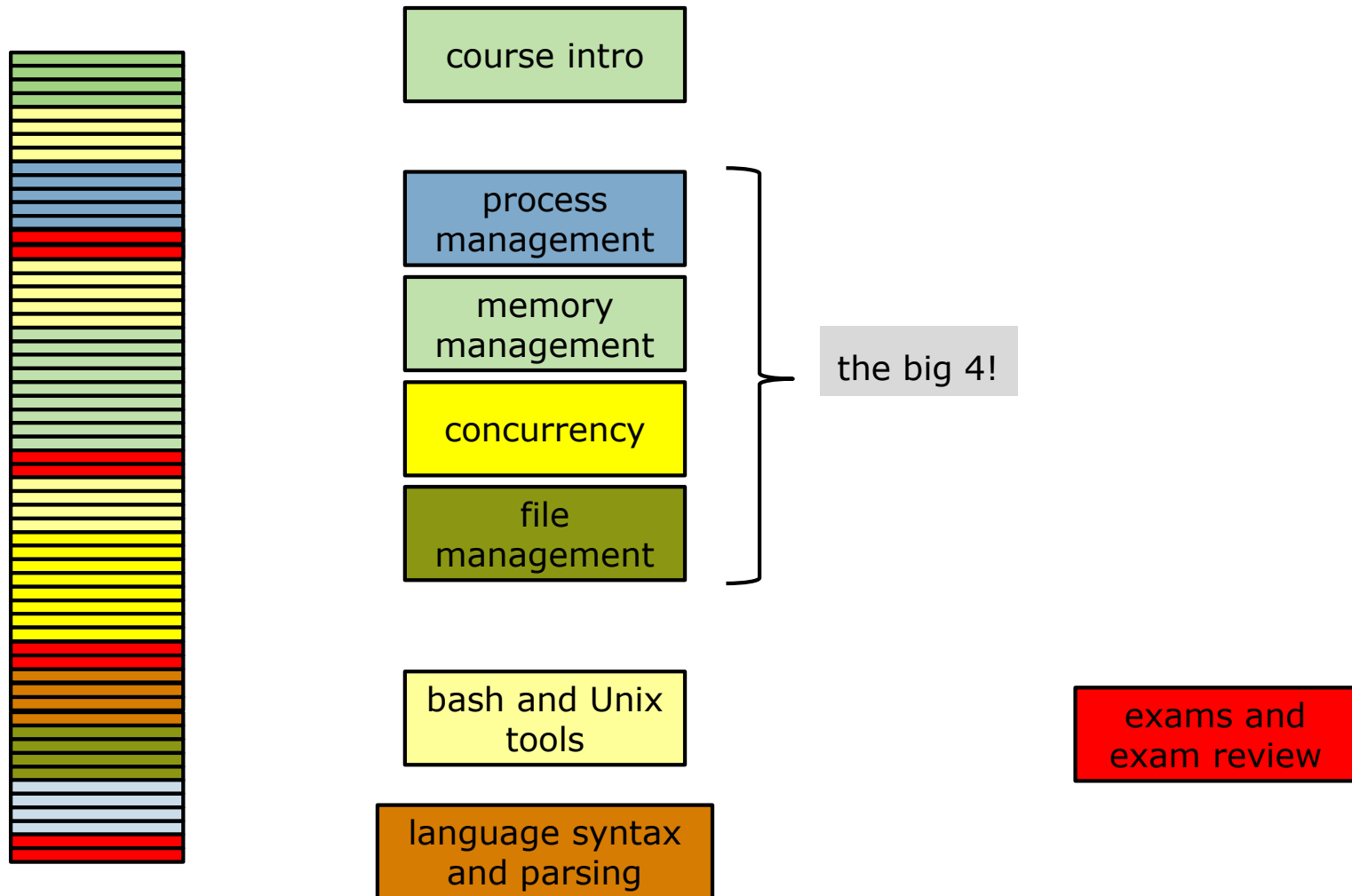
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The future you

16 weeks from now you'll be able to:

- ❑ work from the Linux command line, script with Bash, awk, and sed, and build programs with make
- ❑ explain how Linux works (process management, memory management, and file management)
- ❑ write multi-threaded programs

Visualization of course



Class Structure

Each class session is two 50 minute "modules":

- 30 minute lecture
- 20 minute lab
- lab review, sometimes

2 modules per class session.

Learning, Intelligence, and Character

- ❑ Please focus on your learning
- ❑ We will discuss efficient ways to study
- ❑ But I want you also to get smarter!
- ❑ This involves:
 - asking questions – ask **why**
 - identifying situations that are strange or abnormal
 - wanting to identify problems and solve them

How to learn

Research (see book “Make it Stick”) shows these common learning strategies are not very effective:

- rereading text or lecture slides
- massed practice (cramming)
- blocked practice (drilling on a single problem type)

More effective learning strategies are:

- retrieval from memory
- spaced practice
- elaboration

How to solve problems

Why is trying to solve a coding problem in one sitting a bad idea?

To solve challenging problems, you need to use both **focused** and **diffuse** modes of thinking.

Focused:

- like a focused flashlight beam: penetrates deeply into a small area
- rational, sequential, analytical

Diffuse:

- like a diffuse flashlight beam: casts light broadly
- relax your attention and let your mind wander

You need to toggle back and forth between these modes.

You get stuck when you fixate on a flawed approach.

Resources:

- A mind for numbers, Barbara Oakley. (source for some text on this slide)
- <https://www.coursera.org/lecture/learning-how-to-learn/introduction-to-the-focused-and-diffuse-modes-75EsZ>

Coin triangle problem



Move only three pennies to make triangle point down instead of up.

Try shifting to diffuse mode.

Organizing your study time

You need to spend a lot of time coding and getting comfortable with class concepts.

Don't try to squeeze your homework into 1 or 2 days!

I recommend you structure your time like this:

- 1.5 hours every day (take 1 day off)
- two 40 minute sessions, with a 10 minute break

Taking notes in class

Lecture slides and videos posted to iLearn every day – don't try to write everything!

Use keywords and short phrases.

Highlight important things.

example:

how to learn

- retrieve from memory
- don't cram

taking notes

- just get key points
- keep it short

www.oxfordlearning.com/5-effective-note-taking-methods/
collegeinfo geek.com/how-to-take-notes-in-college/

Activities during lecture

We'll often work together on something during lecture.
Please have paper and pencil ready during every class.

Course TAs

- office: BIT 230
- hours: TBD



Mike Menendez

Zackary Hutchinson

About me

BS (Chem. Engr.), CSUN

Masters (Software Engr.), WI

CS courses, UT Austin

PhD (Comp. Sci.), Univ. of Edinburgh



Software developer

Software research, MCC

Research Fellow, Univ. of
Edinburgh

Software Research, Bell Labs

Asst. Prof., CSUMB / Cisco



Reading

It's important to spend time on the assigned readings.

- ❑ The author covers many things we don't have time to cover in lecture
- ❑ You need to learn to read dense technical material.

The goal is learning, not reading.

Read the material slowly.

Think about what you are reading; take notes.

Don't try to read many pages in one sitting.

Editing hw.txt files

Your answers to reading questions are graded by a script.

For homework 1, download hw1.txt.

Edit hw1.txt using a text editor (like nano or vim, not Word)

Format must be correct to get credit!.

```
# Homework 1 answer sheet.  
#  
# Problem lines begin with #@.  
# For each problem, put your answer on  
# the line following the problem line.  
# Do not modify this file in any way  
# except to insert your answers.
```

```
# 1 Reading
```

```
#@ 1a - enter 'a', 'b', or 'c'
```

```
a
```

```
#@ 1b - enter 'a', 'b', or 'c'
```

```
c
```

Slack

CST 334 has its own Slack workspace.

You'll need to join the workspace, because:

- ☐ I'll make class announcements on Slack
- ☐ Discussion with classmates will happen there
- ☐ You can direct message me there for help
- ☐ I respond most quickly to Slack messages

Invitation to the workspace is at the top of our iLearn page.

Course policies

See syllabus

Additional learning resources

- *Modern Operating Systems*, Tanenbaum
 - well written, good for conceptual understanding
 - can get 3rd edition used for \$10
- *Understanding the Linux Kernel*, Bovet & Cesati (3rd edition)
 - huge book, lots of Linux detail
 - O'Reilly, \$33
- *The Design of the Unix Operating System*, Bach
 - older but valuable
 - shows a lot of data structures used by Unix
 - apparently lots of Linux based on this book
 - about \$10 for a used copy

Some things to remember

- ❑ Have fun
- ❑ Focus on growth and mastery
- ❑ Start homework early! Do the reading!
- ❑ Look at the weekly schedule on iLearn
- ❑ Drop by my office to chat
- ❑ Please call me Prof. Bruns or Dr. Bruns

- I am also committed to your success and will do all I can to help you.
- You must take responsibility for your learning!