

CS 241, Fall 2013

August 26, 2013

Operating Systems?

“System”

- ***system:***
 - A set of connected things or parts forming a larger and more complex whole.
 - An integrated set of elements that accomplish a defined objective.

Challenges

- ***Accessing Resources:***
 - CPU (processes/threads), RAM, storage, network, ...
- ***Sharing/Coordinating Resources:***
 - Limited CPU, RAM, storage, network bandwidth
 - Synchronization, deadlock, communication
- ***How it all works!***

The Team

- **Wade Fagen**
 - 2215 SC
 - wfagen2@illinois.edu

The Team

- **Teaching Assistants (TAs)**
 - Paul Bissonnette
 - Bobby Chen
 - Hongyang Li
 - Reza Shiftehfar

- **Lab Assistants: TBA**

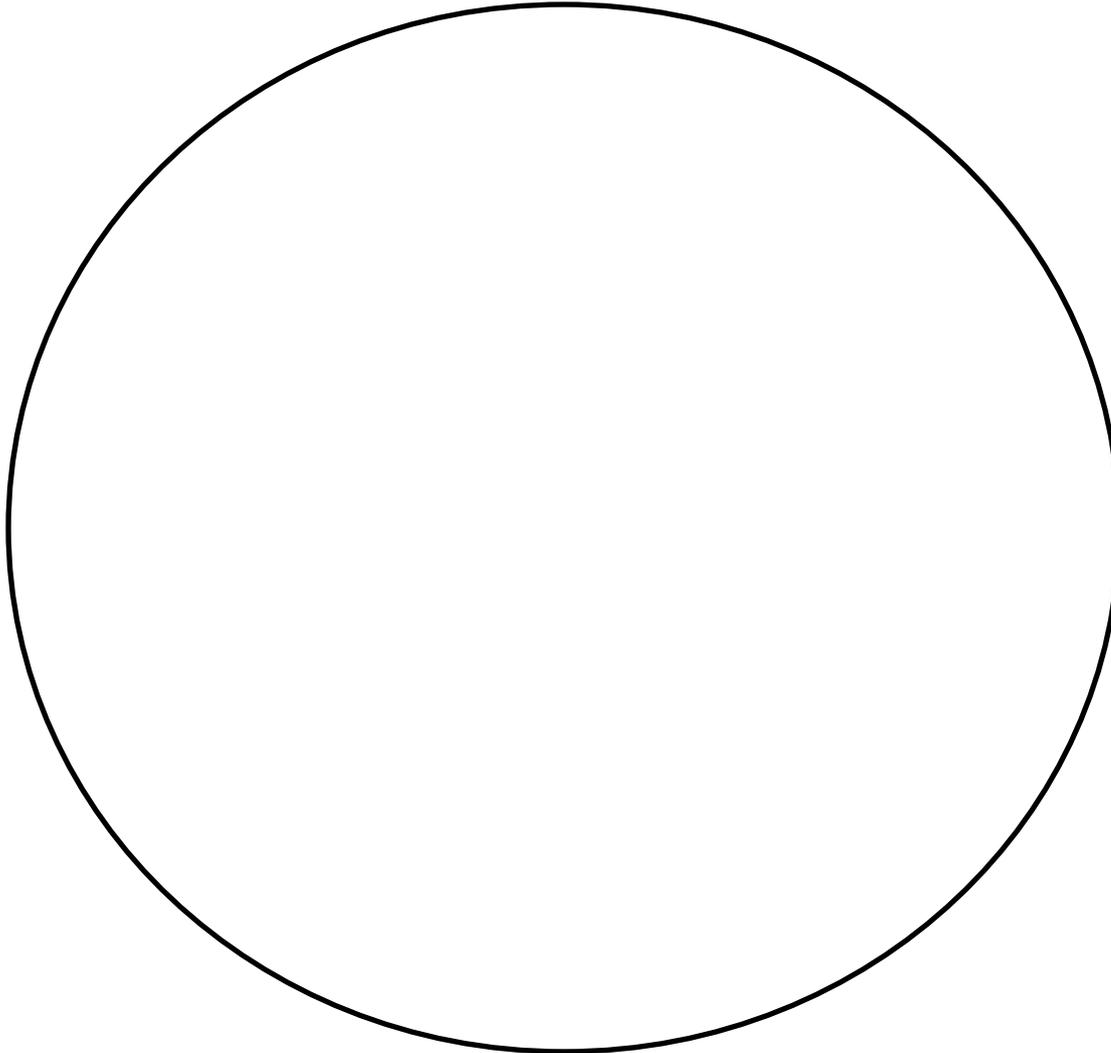
Communications

- Course announcements and discussion:
 - Piazza (<http://www.piazza.com/illinois/cs241/>)
 - Access Code: _____
- E-Mail
 - cs241help-**fa13**@cs.illinois.edu
 - Use for personal questions only. We will be unable to help on MP-related questions via e-mail!

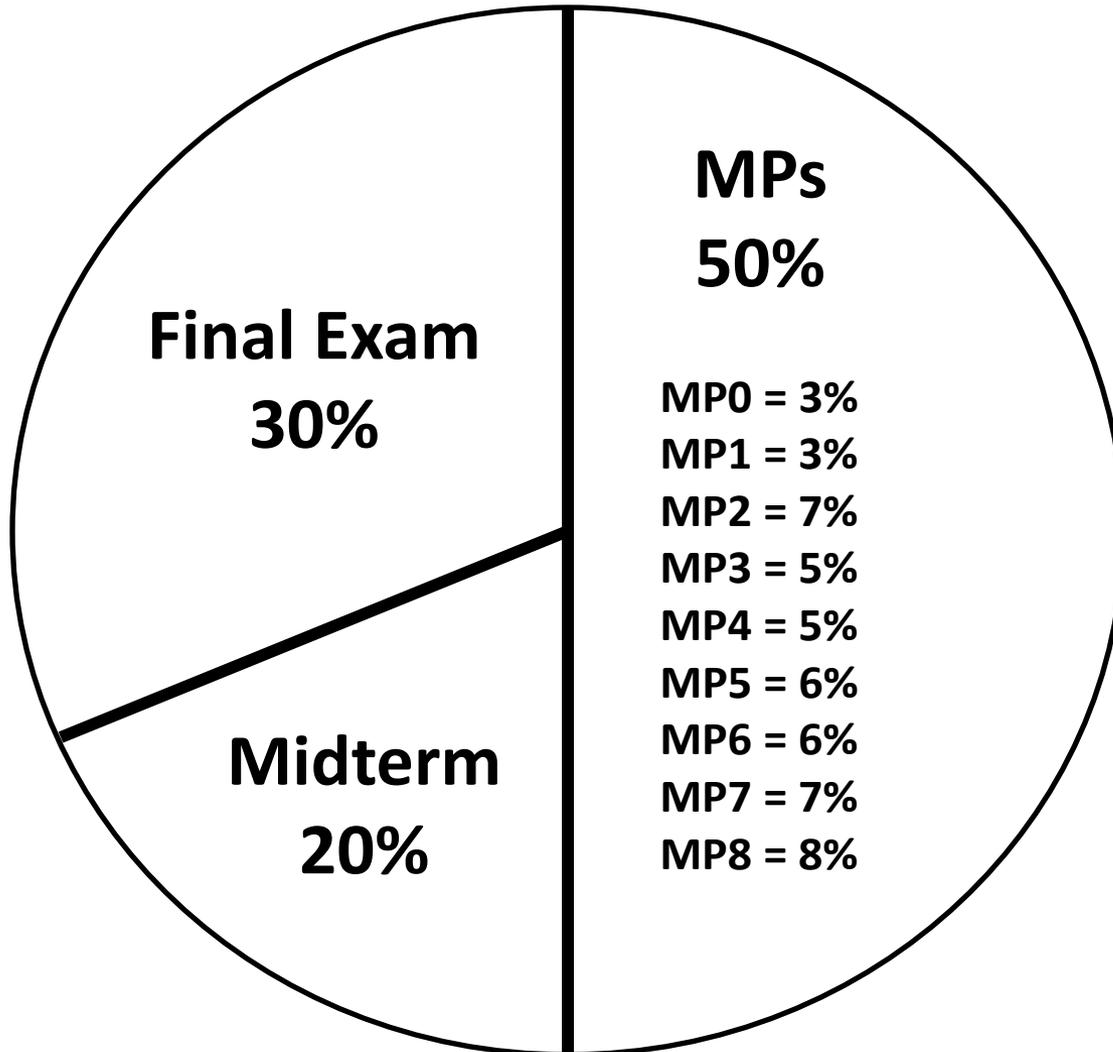
Discussion Sections

- You must be registered for one discussion section.
 - Meets on Thursdays, starting **next** week
 - Small-group programming with a TA. Weekly “MiniMPs” will be done that are highly relevant to the MP and/or lecture material.
 - Attendance isn’t required, but it will be worth your time.

Grading



Grading



MPs

- **Nine MPs: MP0 – MP8**
 - Length: 1 – 2 weeks
 - Longer/harder MPs → Worth more of your grade!
 - Usually released on a Monday
 - Usually due on a Monday @11:59pm

Late Submissions

- **MP Policy:**
 - Up to 24 hours late, score scaled to **70%**.

Regrades

- Regrade requests must be made within one week of the assignment grade being posted.

Exams

- **Midterm Exam**

- Monday, Oct 14th **7pm – 9pm**

- **Final Exam**

- Friday, Dec. 20th **8am – 11am**

- ***We are unable to give an earlier exam. Schedule your flights/travel accordingly!***

Academic Honesty

- All work in this course is **individual** work.
- What is cheating?
 - Copying code
 - Copying pseudo-code
 - Copying flow charts
 - Diagramming a program with your friend
 - Anything where someone else tells you **how** to do it.

Academic Honesty

- What is not cheating?
 - Talking about high-level concepts
 - Discussing MP requirements
 - Discussing the C language, compiler, or tools
 - Helping with a very specific debugging question, limited to a small portion of the program
 - ***“He fixed my code”*** is not an excuse, your submission must be your work.

Academic Honesty

- Penalty
 - First infraction
 - **Exam:** Automatic 0 on the exam.
 - **MP:** All involved parties receive a 0 on the MP. Additionally, a full letter grade may be deducted from your grade.
 - Next infraction:
 - Grade of F
 - See course website for more information.

What will you do?

- Week 1-2: **Nuts & bolts**
 - Manipulate pointers and memory
 - Use UNIX system calls from within C programs
 - MP0: Introduction to C
 - MP1: Working with C pointers & strings
- Week 3-4: **Memory**
 - Understand memory allocation and virtualization
 - MP2: malloc (+contest!)

What will you do?

- Week 5-6: **Parallelism**
 - Create and manage processes and threads
 - Control scheduling of proc./threads
 - MP3: Shell
 - MP4: Multithreaded sorting
 - MP5: Scheduling algorithm simulator
- Week 7-11: **Cooperating parallelism**
 - Communicating & sharing resources between proc./threads
 - MP6: Parallel make
 - MP7: MapReduce

What will you do?

- Week 12-13: **Networking**
 - Use communication protocols (TCP/IP) and interfaces (Sockets)
 - Write distributed multi-threaded apps that talk across a network
 - MP8: Web server
- Week 14: **Additional OS concepts**
 - I/O and file systems

CS 241

<http://courses.engr.illinois.edu/cs241/>