CIS 415
Operating Systems

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http://www.cs.uoregon.edu/Classes/13W/cis415/
https://piazza.com/uoregon/winter2013/cis415/home

General Information

Term: Fall 2012
CRN: 27074
Course: Operating Systems
Credits: 04
Instructor: Juan J. Flores
Phone: (541) 346 1398
Email: juan@cs.uoregon.edu
Time: MWF 4:00pm - 4:50pm
Place: Gerlinger 301
Office Hours: Tuesdays 10:00 - 11:45,
or by appointment
General Information

GTF: Ahmadreza Khadem  
Phone: (541) 346 XXXX  
Email: khadem@cs.uoregon.edu  
Office Hours: W, F 15:00 - 16:30, or by appointment  
Discussion Sessions:  
Practice Problems, solutions, Q&A, programming assignments  
Course Virtual Discussions:  
https://piazza.com/uoregon/winter2013/cis415/home  
Slides posted on Web Page & Piazza  

Please, complete the survey at:  
http://www.surveymonkey.com/s/MBSYL8W

Course Description

Operating systems have recently reached to applications that were unimaginable a few years ago. An operating system is an essential part of every video game box, cellular phones, smart devices, etc. The advance of hardware brings topics that used to be solely the domain of supercomputers to everyday PCs. These two facts, among others, have made operating systems a very active area of research and development.

This course is an introduction to the theory and practice behind modern computer operating systems. Topics will include what an operating system does (and doesn't) do, system calls and interfaces, processes, concurrent programming, resource scheduling and management (of the CPU, memory, etc.), virtual memory, deadlocks, distributed systems and networks, and security. We will approach the subject from both a theoretical perspective (what are the abstractions and algorithms?) as well as a practical one (what are the mechanisms and how are they built?). A detailed list of lecture by lecture contents, assignments, and due dates (subject to change as the term evolves) will be available on the course schedule.
Grading

- **Grading:**
  - Homeworks (4) - 25%
  - Programming Assignments (2) - 25%
  - Midterm Exams (2) - 25%
  - Final Exam - 25%
Policies

- **Late Assignments:**
  All assignments are due at the beginning of the class on the date due. Since we will discuss the assignments at that time, late assignments will not be accepted. If you think you have a legitimate reason to argue for an exception from this rule, make sure that you communicate it prior to the due date.

- **Cheating and Plagiarism:**
  Assignments are personal, unless otherwise specified. Any traces of plagiarism, i.e. copying someone else's work, will be dealt with according to the University regulations. Discussions and exchange of ideas are encouraged, as long as the work you turn in is personal.
References

- **Textbook:**

- **C:**

- **Java:**
  - The Java tutorials

- **Unix:**
  - Learn the Linux Command Line: LinuxCommand.org

Course Topics

- Roles of an OS
  - Resource Manager
  - Interface User/Program <-> Hardware
  - Services Provider

- Principles, Algorithms, Mechanisms

- Unix/Linux/Windows
Course Goals

- Students learn what every CIS graduate should know about OS
- OS complexity – what it does ... how it does it
- Sharpen your analytical skills
- Enable you to apply what you learn to any (future) OS

History of Unix

- Unix, conceived and implemented by Ken Thompson and Dennis Ritchie (AT&T Bell Laboratories) in 1969 – first released in 1970
- Richard Stallman started the GNU project (goal of creating a free UNIX-like OS) – As part of this work, he wrote the GNU General Public License (GPL)
- Berkeley Software Distribution (BSD), developed by UC Berkeley based on Unix from AT&T – released in 1977
History of Unix

- Maurice J. Bach (AT&T Bell Labs), 1986. – *The Design of the UNIX Operating System*, covering the System V and some of BSD.


- Linus Torvalds started the Linux kernel, in 1991, in Helsinki.