Welcome to CSCE 313
Introduction to Computer Systems

Department of Computer Science and Engineering
Texas A&M University

Logistics

- **Instructor:**
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- **TA:**
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Webpages

• Class webpage
  – http://courses.cse.tamu.edu/guofei/csce313/

• Piazza webpage
  – https://piazza.com/class#spring2015/csce313h

• eCampus webpage
  – http://ecampus.tamu.edu/

What do you know about computer system?

• Operating system (name OS that you know)

• Computer networking

• Secure system
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• **Textbook:**
  – UNIX Systems Programming: Communication, Concurrency and Threads, 2/E, by Kay and Steve Robbins, 2004

• **Other suggested readings:**
  – Operating System Concepts, by Silberschatz, Galvin, Gagne
  – Computer Systems: A Programmer’s Perspective, by Randal E. Bryant and David R. O’Hallaron

• Lecture slides posted on the class website
• You are responsible for:
  – reading the assigned portions from textbook
  – reading related material on class handouts

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• **Labs:**
  – Goal: acquire a working knowledge of one widely used application interface (POSIX) to an operating system (UNIX/Linux).
  – 4 Machine Problems
  – **They are difficult**
  – MP1 will be out soon!
  – Submission through eCampus. Check the Lab Manual on class website for instructions.

• **Homework**
  – 4 assignments.
• All the work is individual, NO teams
• Late submissions: penalized with 20% of full credit per day
• After HW/MP returned, 1 week for regrades
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• **Assessment:**
  – Two tests: one mid-term, one final exam (200+250)
    • All tests are closed book
    • One 8.5x5.5in hand-written cheat sheet allowed. Nothing else allowed!
  – Lab: Machine Problems MP: 400 points
    • MP may have bonus points
  – Homework: 100 points
  – Others (e.g., class participation): 50 points

• **Grading:**
  – A: 901 - 1000 points
  – B: 801 - 900 points
  – C: 701 - 800 points
  – D: 601 - 700 points
  – F: 0 - 600 points

What is an Operating System?
What is System Programming?

CSCE 313 course objectives:
– what **system software** is involved for an application program to run (on a single node and over a network)
– how this **system software** is to be used

At the end of the course, you will understand:
– What is an operating system; what are its components; why system calls;
– Execution of a program; function calls; interrupts.
– Memory layout of a running program
– OS application interface; file system; process control;
– Concurrency, process synchronization, interprocess communication
– Network Programming; Berkeley sockets; RPC; pitfalls in networks.
– Security threats in centralized and distributed systems; authentication, authorization, confidentiality; security mechanisms.
Optional Honors Project

- You form a team (1-2) and conduct a project, in which you design/implement/evaluate some useful, interesting, new (or improved) system/networking software/tool. Talk to me for details if interested.
- If you take this option, you can use it to replace any 2 machine problems or even test 1! (That is, this honors project worth 200 points!)
- There could be extra bonus points for excellent projects!