# CSC 501: Operating Systems Principles

Spring 2018

# Logistics

- Instructor: Xiaohui Helen Gu (gu@csc.ncsu.edu)
  - Office: 3274 EB II
  - Office Hours: Tuesday/Thursday 2pm-3pm, or by appointment
- TA and Grader:
  - Ting Dai (tdai@ncsu.edu)
  - Grader: TBD
- More information
  - http://courses.ncsu.edu/csc501/lec/001

# Introduction

- Associate Professor at NCSU
- Distributed systems research group
  - Group homepage: http://dance.csc.ncsu.edu
- Projects
  - System Anomaly Prediction and Diagnosis
  - Cloud Computing
  - Cloud Security
  - Research assistantships under NSF and NSA grants for PhD students are available!

# Course Overview

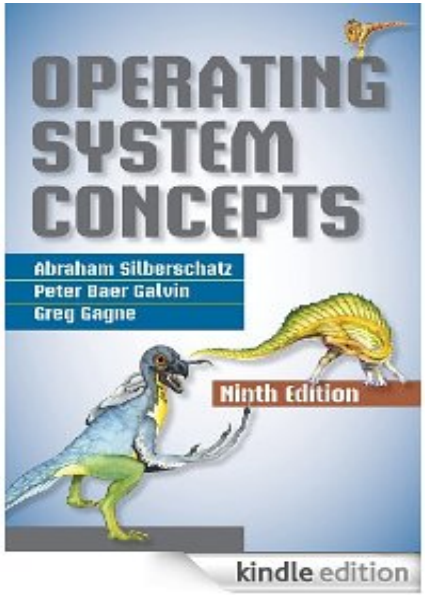
- Goals:
  - OS internals and OS/architecture interaction
  - Advanced topics in current systems research
- Structure:
  - Each major area:
    - Lectures
    - Examples
    - Programming assignments
    - Read research papers

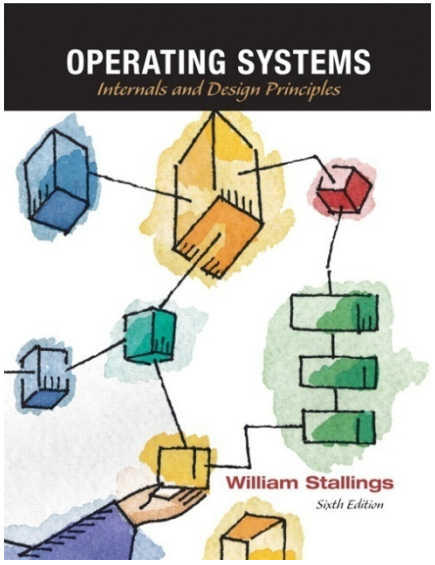
# Course Requirements

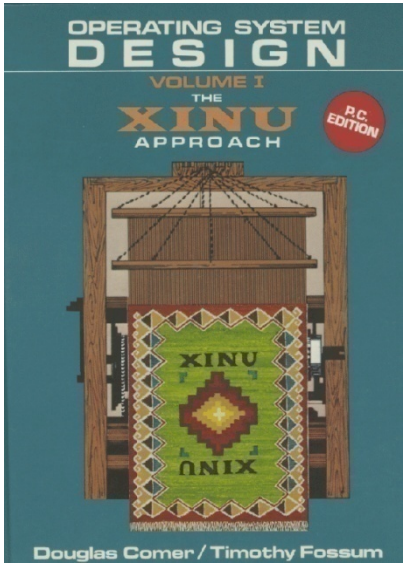
- Prerequisites
  - CSC 246 (operating systems), CSC 314 (data structures)
  - Programming skills in C and Unix
- What to expect
  - Lots of materials
  - Lots of programming assignments
  - In-class pop quizzes
  - One midterm and one final exam

# Textbooks -- Recommended

- Silberschatz/Galvin. *Operating System Concepts*, John Whiley & Sons, 2009. (9th Edition)
- William Stallings. Operating Systems: Internals and Design Principles, Prentice-Hall, 2009. (6th Edition)
- Comer/Fossum. *Operating System Design: The XINU approach,* Prentice-Hall, 1988 (PC Edition)



# Topics

- Processes and threads
- CPU scheduling
- Synchronization
- Memory management, Virtual memory
- file and storage system
- OS protection
- Distributed systems
- Advanced topics: Virtualization, Multi-core OS, Cloud computing, Big Data Processing,
- Course Syllabus at: http://courses.ncsu.edu/csc501/lec/001/syllabus.html

# Grading

- Programming assignments 40% (Note that different PAs have different percentages depending on the complexity)
- Quizzes 5%
- Midterm 20%
- Final 35%

- Above used to compute average grade
- Final grade guarantees
  - 93 or greater A
  - 80 or greater B
  - 65 or greater C
  - 50 or greater D

# Communications

- Outbound (to students)
  - Web page (announcement items)
  - Mailing list
- Discussion (full duplex)
  - Message board

# Student affidavit

- We have a strict policy regarding cheating
  - Both written and programming assignments will be checked
- Read
  - courses.ncsu.edu/csc501/lec/001/affidavit.html
- Fill it out
- Turn it in on 1/16 in class
  - Assignments will not be graded without signed affidavit

# Tips on how to survive, excel, and enjoy

- Do your programming assignments
- Come to lectures
  - Pop quizzes
  - Participate in in-class exercises and discuss with peers
  - Ask and listen to questions
    - Don't be intimidated
- Use all resources available
  - Message board
  - Office hours
- Let me know when you need me to slow down or speak louder
  - Commonly-recognized difficult topics: synchronization, memory management, etc.
- Don't leave things to last minute

# Got Questions?

- Read message board
- Post on message board
- Ask the TAs
- Come by during office hours