CS2106

Introduction to Operating Systems

Lecturer

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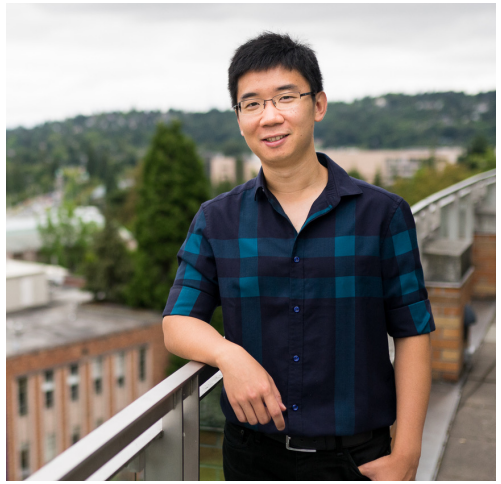
Email to arrange for consultation



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Course Objectives

- **Synopsis:**
  - Introduces **basic concepts** in operating systems
  - Focuses on these areas:
    - OS Structure and Architecture
    - **Process** Management
    - **Memory** Management
    - **File** Management
    - OS **Protection Mechanism**

- **Objectives:**
  - Identify and understand major functionalities of modern operating systems
  - Able to extend and apply the knowledge in future related courses

Specific Learning Outcomes

- After this course, you should:
  - understand how an OS **manages computational resources** for multiple users and applications, and the impact on application performance
  - appreciate the **abstractions and interfaces** provided by OS
  - be comfortable in **writing multi-process/threaded programs** and avoid common pitfalls such as deadlocks, starvation and race conditions
  - be comfortable **writing system programs** that utilizes POSIX system calls for process, memory and I/O management
  - be able to **self-learn advanced OS topics**

Assessment Weightage

- Weightage for various components:
  - Lecture Quizzes + Tutorials: **5%**
  - Lab Assignments: **25%**
  - Midterm: **20%**
    - Mon, 6 Oct, 6:30pm – 7:30pm (Week 8)
  - Exam: **50%**
    - Wed, 26 Nov, 5:00pm – 7:00pm

Assessment – Lab Assignments (25%)

- **Four Graded** Lab Assignments:
  - Each assignment spans ~3 weeks
    - Simple exercise(s) related to the core problem (1%)
    - Complete the assignment (the remainder %)
  - Lab session for:
    - Clarify lab questions
    - Demo the simple exercise(s) to lab TA for the (1%)
  - Submit online - you can work from home
  - "Simple" programming questions:
    - **Linux on x86**, using C

- Reasons:
  - Put the theory in lecture into actual practice
    - Learn Linux (or Unix in general)
    - Learn to interact with OS or simulate aspects of OS

Assessment - Plagiarism

- In NUS, we take a **serious** stand on plagiarism cases
  - All lab assignments will be sent for plagiarism checks

- Plagiarism for lab assignment submission:
  - Once detected:
    - Both *parts* receive **zero** for that lab/exam
  - Repeat offender:
    - Zero for that particular CA component
    - Report to higher authority

Resources

- Mainly on Canvas:
  - Quizzes:
    - Lecture Q&A
  - Discussions:
    - Lectures
    - Tutorials
    - Labs
  - Files:
    - Lectures, tutorials, and labs
  - Videos:
    - Lecture recordings
  - Announcements

References

- Main ***supplementary*** text:
  - Modern Operating System (4th Edition), by ***Andrew S. Tanenbaum***, Pearson, 2009
  - Operating System Concepts (8th Edition), by ***Abraham Silberschatz***, ***Peter Baer Galvin*** & ***Greg Gagne***, McGraw Hill, 2010

- Lecture notes:
  - As self-contained as possible

Acknowledgement

- Many of the lecture materials are created by

  A/P Soo Yuen Jien

  - Lecture notes and tutorials reused with some changes
  - Labs are new!