CS2106

Introduction to Operating Systems

Lecturer

Dr. Cristina Carbunaru

COM2-2-07

ccris@comp.nus.edu.sg

Email to arrange for consultation

Graduate Tutor

Sriram SAMI

COM2-2-18

sriramsami@nus.edu.sg

Email to arrange for consultation

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/thread programs** and avoid common pitfalls such as deadlocks, starvation and race conditions
  - be comfortable **writing system programs** that utilizes POSIX syscall for process, memory and I/O management
  - be able to **self-learn advanced OS topics**

Assessment Weightage

- Weightage for various components:
  - Tutorials: **5%**
  - Lab Assignments: **25%**
  - Midterm: **20%**
    - Sat, 5 October (Week 7)
    - Pending venue confirmation ➔ Timing TBC too
  - Exam: **50%**
    - Tue, 3 Dec, 9am

Assessment – Lab Assignments (25%)

- **Five Graded** Lab Assignments:
  - Each assignment spans 2 weeks
    - Simple exercise(s) related to the core problem (1%)
    - Complete the assignment (the remainder %)
  - Lab session for:
    - Clarify lab questions and clear doubt
    - Both weeks: Demo the simple exercise(s) to lab TA for the (1%)
  - Submit online (details TBC) - 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/tutorial
  - Repeat offender:
    - Zero for that particular CA component
    - Report to higher authority

Resources

- Mainly on LumiNUS:
  - Forums:
    - Lectures
    - Tutorials
    - Labs
    - General
  - Workbins:
    - Lectures, tutorials and labs
  - Announcement
  - and ……

References

- Main ***supplementary*** text:
  - Modern Operating System (3rd 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 minor changes
  - Labs are new!