# Linux System and Its Applications

## Chung-Ang University

# About This Course

- **Goal**
  - Understanding Linux system
  - Performing analysis and kernel programming

- **Totally online-course**

- **Before taking this course**
  - You should take OS and data structure courses in advance.
  - It may be very hard for some students especially for assignments and term project.
  - Please take this course if you are interest and ready for deep study for Linux system and kernel programming.

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# Course Schedule

| Week | Topic & Content |
|------|-----------------|
| 1 | Course overview |
| 2 | Introduction |
| 3 | Linux Commands and tools |
| 4 | Linux kernel compile and system calls |
| 5 | Kernel modules |
| 6 | Kernel data structures |
| 7 | Process and thread (1) |
| 8 | **No midterm exam** |
| 9 | Process and thread (2) |
| 10 | Synchronization (1) |
| 11 | Synchronization (2) |
| 12 | Scheduler (1) |
| 13 | Scheduler (2) |
| 14 | File system |
| 15 | **Term project (1)** |
| 16 | **Term Project (2)** |

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# Assessment

- Assessment
  - Attendance: 0%
  - Assignment: 50%
  - Term project: 50%

# Assignments

- **Weekly Programming**
  - You will perform kernel programming in one class every week
  - You should submit your source code and report to e-class
    - In your report, the following items should be added
      - Description of the kernel programming or the results
      - Figures of the results

- **Tuseday → Lecture**
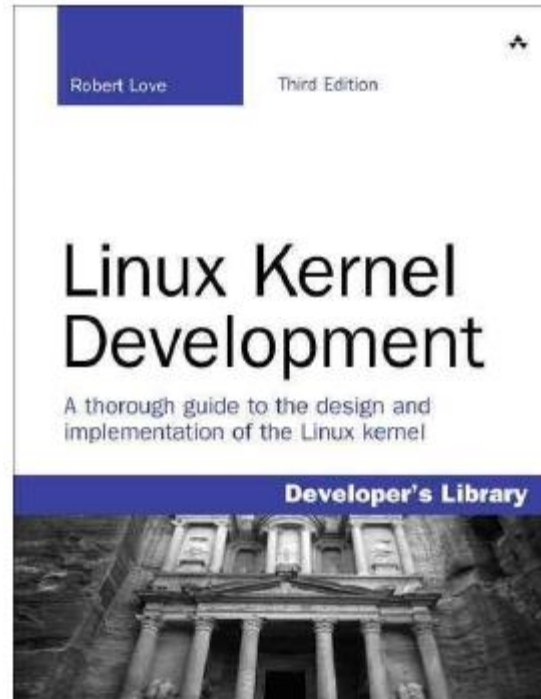- **Thursday → Exercise & Assignment with TA**

# Term Project

- **Kernel Data Structure vs. Your Kernel Data Strucutre**
  - You should pick a data structure in kernel (linked list, tree, etc)
  - You should improve the performance (insert, delete, traverse) compared with kernel data structure
  - You can make a team with four people
  - Presentation

- **A Team with four people**
  - Send e-mail to TA
    - Class division 1 → Jaehyun han (whffu2421@cau.ac.kr)
    - Class division 2 → Guangyu Zhu (zgy29@cau.ac.kr)

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# Reference Book

- Robert Love, Linux Kernel Development

# Instructor Information

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- Please feel free to contact me for any class issues