CSC0016 Advanced Operating Systems
0.Syllabus

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About Me

- **I am an associate professor.**
  - **PhD at NTHU**

- **Email: chlin@ntnu.edu.tw**

- **Office: R509, Applied science building**
- **Office hour: Monday & Friday 14:00~16:00**
  - **By appointment only, email me to schedule a meeting**

Course Administration

- **Time: Monday 09:10~12:10**
- **Location: 理圖002**
  - **We should use it for midterm only.**
- **Instructor: Chun-Han Lin (林均翰)**
- **Teaching assistance: Jhan Le Huang (黃展樂, mountain11201120@gmail.com) and Jui-Hua Lu (呂睿華, ray321asd4413@gmail.com)**
- **Course website: http://moodle3.ntnu.edu.tw**
  - **Announcements, videos, slides, assignments, …**
  - **No spam or block it**

Typical Lecture Format

- **Release videos and slides weekly**
  - **Closed after 1 week (open until MM/DD)**
  - **Watch videos with slides, anywhere, anytime, with your own choices. Maximize throughput?**
  - **Note questions with time (videos) or page number (slides)**
- **Question discussion**
  - **Suggestion order: [textbook => slides => videos] => classmates (most similar) => TA (senior) => instructor**
  - **Email me**
  - **Weekly discussion**
    - **https://meet.google.com/obw-cord-csz**
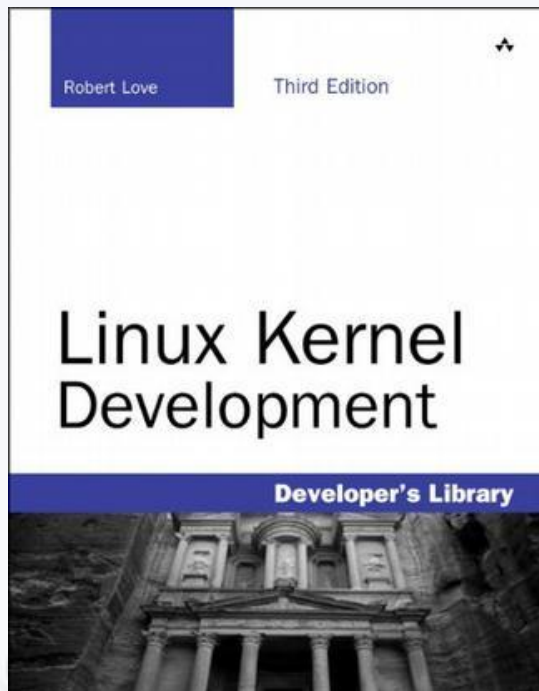   - **Start at course time, stay at most 5 min if nobody asks**

Textbook – Many!

- **We will use a number of different books.**

  - **It is hard to find any one book that has everything we want.**

  - **In fact, we will eventually be supplementing with research papers!**

- **Linux Kernel Development, 3rd Edition, Robert Love**

- **Text on Linux 2.6 kernel structure**
- **Discuss practical aspects of system implementation**

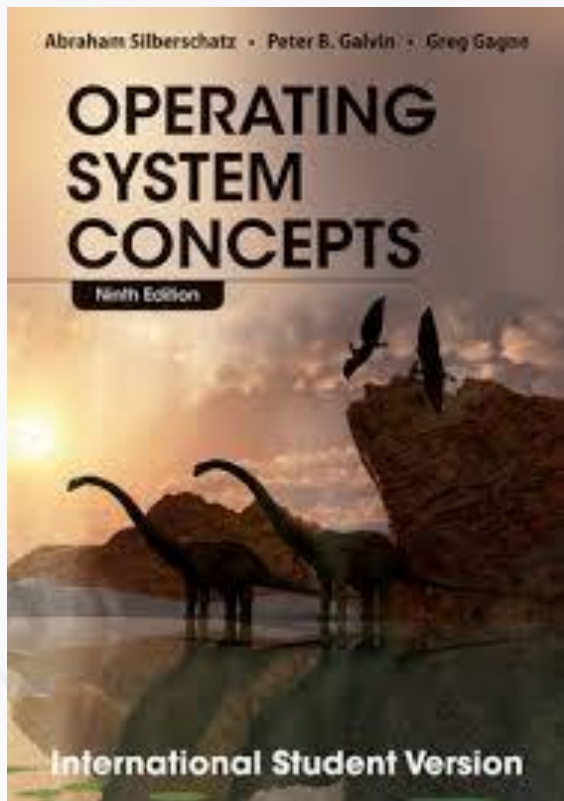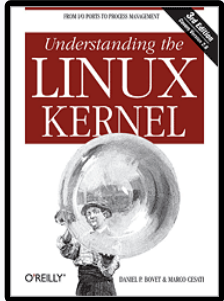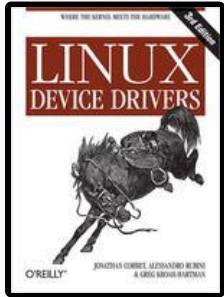- **Do you need the 3rd edition? Yes! 2.6 kernel.**

Textbook #2

- **Operating System Concepts, 9th Edition, International Student Version, Abraham Silberschatz, Peter B. Galvin, Greg Gagne**
- **Addison Wesley**
- **Yes, you used this book in CSU0033, but we will cover some aspects in more depth.**
- **Do you need 9th edition?**
  - **No, but we will cover some new material, especially sections on virtual machines.**
- **Is 10th edition okay?**
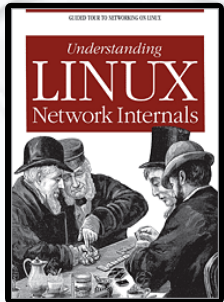 - **Yes, I have briefly checked the content.**

Supplemental Textbook

- **Textbook #3**
- **Understanding the Linux Kernel, 3rd Edition, Daniel P. Bovet, Marco Cesati**

- **Textbook #4**
- **Linux Device Drivers, 3rd Edition, Jonathan Corbet, Alessandro Rubini, Greg Kroah-Hartman**

- **Textbook #5**
- **Understanding Linux Network Internals, 1st Edition, Christian Benvenuti**

Syllabus

- **Fundamentals, Operating Systems Structures, and Linux Structure**
- **x86 Architecture**
- **Processes, Synchronization, and Scheduling**
- **File Systems, VFS, and Distributed Storage**
- **Memory Management and Demand Paging**
- **I/O and Device Drivers Structure**
- **Networking Subsystems**
- **Protection and Security**
- **Virtual Machines**
- **Advanced Topics**

Grading (1/2)

- **Homework (30%): ~3 assignments**
  - **Install and modify a real-world OS, Linux**
  - **No lecture-related assignments**
  - **Check your workload carefully**
  - **Late penalty: -1 grade each day or partial day late, up to 5 days**
    - **Based on the delivery time in the website**
- **Report (30%)**
  - **Read and present a recent research paper at 15th and 16th weeks**
  - **Check your workload carefully**

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- **Midterm exam (30%)**

  - **Textbook, slides, videos, and research papers**

  - **Mostly based on the exercise list**

  - **Research papers and exercise list are in the website**

  - **English reading, OS terminologies, and precise answers**

- **Performance (10%)**

  - **Comprehensive performance in other items**

Authorization Code

- **Based on the syllabus, consider if the content and workload of the course match your requirement.**

- **Use course selection system first!**

- **No withdraw when using authorization code!**

- **Email me if you want to enroll in the course**
  - **Let me know you have understood the syllabus! Or, I will ask you to do it, again.**