Introduction to Operating Systems

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Course Scope

- Three pillars of operating systems
  - CPU management
  - Memory management
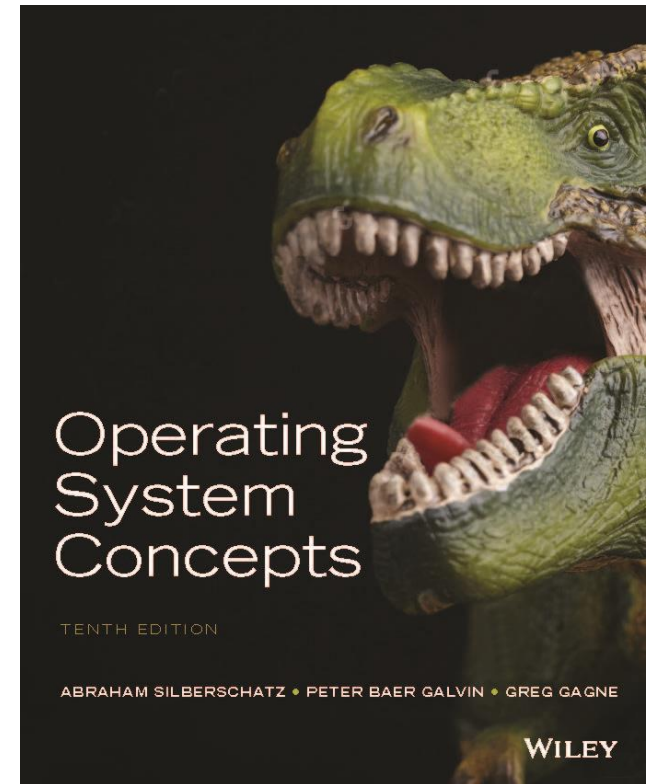 - Storage management

Course Scope

- Will I write a (serious) OS in my life?
  - 99% No

- Then why should I learn OS?
  - To add new functionality to an OS
  - To port an OS to new hardware
  - To write efficient programs, or
  at least, to avoid writing poorly
  performing programs

Hello world!

Operating
Systems

Text Book

- A. Silberschatz, P. B. Galvin, G.Gagne, "OPERATING SYSTEM CONCEPTS"

- Any edition works. There is not much difference in the core topics (ch1~ch13) among editions

Pre-Requisites

The followings are highly recommended before you take this course

- C Programming

- Data Structures

- Computer Organization

Programming Assignments

- P1: a simple shell
- P2: matrix mul (process)
- P3: merge sort (thread)
- P4: malloc() BF/FF
- P5: cache simulation
- P6: FUSE file system

**subject to change

Grading Policy

- Two exams
  - Midterm: 30%
  - Final: 30%

- Programming assignments
  - 6 assignments, 36%

- Teacher's flexibility:
  - Quizzes and Attendance, 4%

作業系統怎麼學?

- 作業系統不是一門『背課』
  - 論述、比較、分析
  - 例:恐龍課本的習題

  9.7 Discuss situations under which the least frequently used page-replacement algorithm generates fewer page faults than the least recently used page-replacement algorithm. Also discuss under what circumstance the opposite holds.

  - 捨棄『標準答案』,要能 critical thinking
  - 程式作業 → 實踐出真理
  - 單元習題 → 自我回顧學習重點

善用(但勿濫用)資源

- 建議跟同學討論、善用 GenAI、網路孤狗
- 討論查詢完後，自己『從頭』寫
- 注意: 比對重複性太高，得 0 分
  - 同學A → 同學B
  - 同學A → GPT ← 同學B (共用帳號者特別注意)
  - 同學A → 野生版本 ← 同學B

作業評分

- 遲交
  - 從80%開始，每多一週再扣10%，最低至60%
    - 80% → 70% → 60% → 60% ...
  - 最後遲交日期：第18周星期三結束前
- 抄襲處理
  - 0分，不可補交
  - 從別人(or GPT)的程式檔案改出你的作業，不管你改了什麼、改了多少，這都不是老師能接受的做法

考試方法

- 期中期末考
  - 筆試，不看書
  - 多做考古題(交大資工考古題系統，學校帳號)
  - 投影片結尾的review questions
- 小考
  - 形式不拘
  - 通常允許討論

上課方式

- 每週三課堂
- 每週五錄影

課程資訊

- E3
  - 重要課程公告
  - 交作業
- Google Sheet→https://tinyurl.com/49w35us9
  - 課程時間表
  - 投影片
  - 預錄影片 for 課堂&作業
- FB 群組
  - 搜尋『2025 NYCU CS OS 概論』