Operating Systems
Overview of the Course

Hitoshi Oi

The University of Aizu

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Essential Course Information

Course Number and Title: F6/C5 Operating Systems

Instructor Hitoshi Oi, `hitoshi@u-aizu.ac.jp`, ext 2580

Office Hours Tue. 1400 to 1600 or by appointment, at RQ 242-C (subject to change).

Textbook "Modern Operating Systems (4th Edition)", by Andrew Tanenbaum, Prentice Hall,
ISBN-10: 1292061421, ISBN-13: 9781292061429

Web site `http://www.u-aizu.ac.jp/~hitoshi/COURSES/OS/`

Course Assistant Yasushi Nagao `os16ta@oslab.biz`

Grading Schemes and Policies

Information in this slide is subject to change. Keep checking the course web site and notice board.

Grading Scheme

Final Grade = Midterm Exam (30%) + Final Exam (30%)
+ Exercises (40%)

$*$ there may be chances to earn extra credits.

Changes to the Late Submission and Exam Policies

Due to the standarization force of the school, these policies are quite altered. Exam policies should be available later from the course coodinator.

Late Submission Pocilies (1)

Each exercise is due after a week from the day of the corresponding class. A late submission recives the following partial points:
(cut-off date is five weeks from the class, or one week before the final exam, whichever comes first)

- 0% for any submission after the cut-off date
- 50% for more than one but less then two weeks
- 25% for more than two but less than four weeks
- 10% for more than four but before the cut-off date

Late Submission Pocilies (2)

- **A week** is defined to be from the day of the class (Wednesday in the case of this OS class) to the end of the day before the class of next week (Tuesday).
- For example, if a stuent hands in his/her work for today at 2359 on Tuesday of the next week, he/she will receive 100% (of the grade mark), while another student who hands in his/her work at 0001 on Wednesday of the next week, he/she week will receive 50%.
- Please note that the grading priority is given to those submitted before due date (i.e. a week from the class).

Rough Course Schedule

Today Course Overview and Introduction to the operating systems (Chapter 1).

Next Four to Five Weeks "Processes and threads" and "Deadlocks" (Chapters 2 and 6).

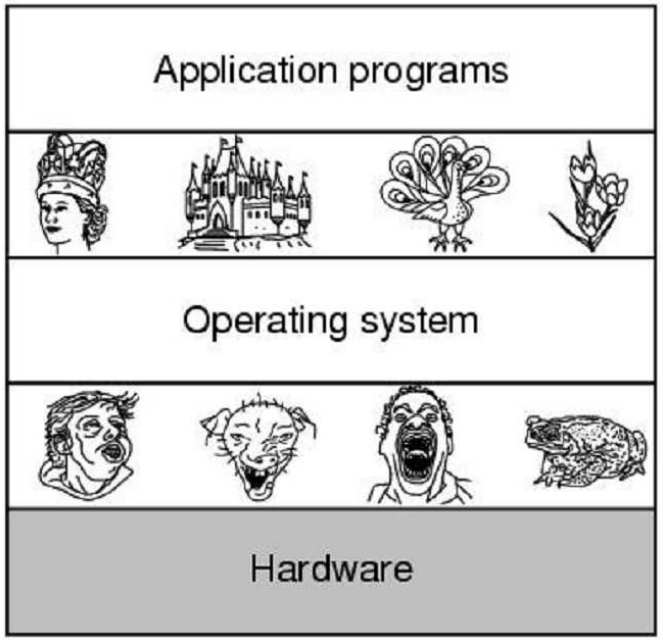
Mid-term Exam covers Chapters 1, 2 and 6

Next Four to Five Weeks "Memory management", "File systems" and "Input and output" (Chapters 3 to 5).

Final Exam covers all Chapters 1 to 6.

Exercise problems can be either programming assignments or the problems from the textbook/lectures.

OS: Interface between HW and SW

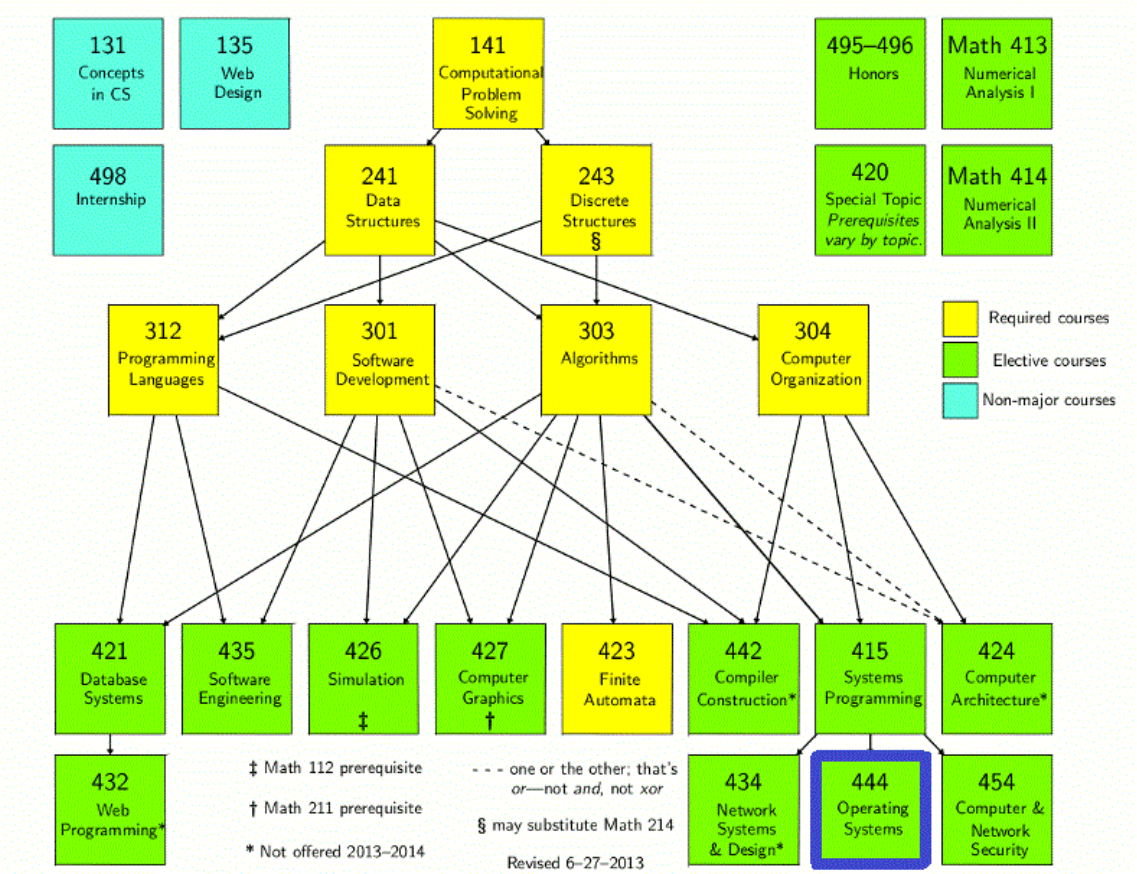


- OS plays the role of interface between HW and SW.
- HW Abstraction (hides details of the HW to the SW)
- Resource Management (enforces fair and efficient usage of HW)

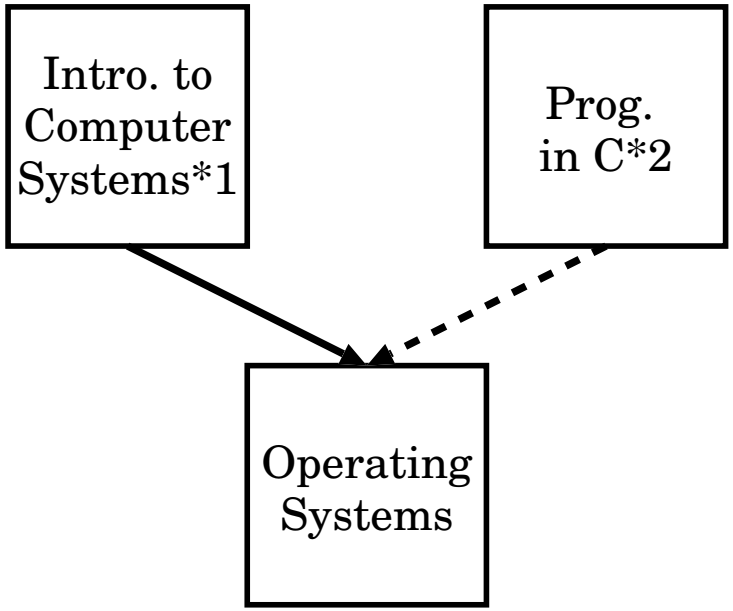
OS: A Required Course in Many Schools

- As mentioned in the prev. slides, the importance of the OS courses is recognized people in the CE/CS fields.
- For CS/CE majors, OS is a required course for BS and MS degrees in many courses.
- If not a required course, it is still one of courses from which you have to choose one.
- Even for PhD degrees, it is one of the subject in the "qualifier."
- Unless you aim to be an IT Specialist, computer-based artist (e.g. Computer Graphics) or alike, you should study this subject.

Prerequisite Chart at Some School



At Our School

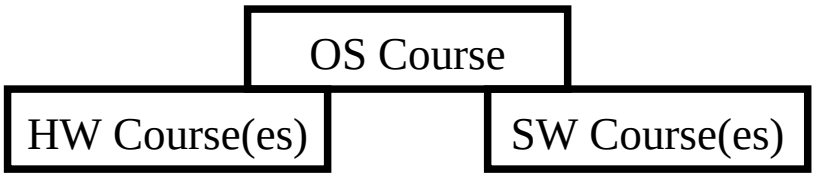


*1 The instructor's own translation of "Shisutemu Gairon."

*2 Programming in C is not an official prerequisite (but what else ??).

Prerequisite and OS Course Relationship

This



Not This

We will learn OS basics on top of what you learned in prerequisites courses (they are not independent collection of courses).

What Do Previous Slides Imply to You ?

- The background knowledge you have learned through prerequisite courses so far should be less than what is assumed for the OS course in other schools.
- Therefore, the instructor provides background information to understand the course material as needed. Also the assignment and exam levels and quantities will be adjusted.
- However, it is still assumed that the students have studied the aforementioned courses and have decent understanding of the course materials.
- If it is not the case for you (e.g. you wrote programs but did not know how they worked), you may have to review the materials of previous courses by yourself.

Textbook

- Hope you read the email sent from the instructor (and also from the university bookstore).
- If you just need the information you need to pass the course, this book is much thicker, BUT "Reading Comprehension" is the most important aspect of learning (not only for this course..)
- Maybe this book is more expensive than any book you bought in the past, BUT if you do a quick search, you'd instantly know how popular, standard and famous this book and the author are
- Also, due to the Global Edition and the special academic discount, the price is much lower than the hard cover (which the US students must purchase)

Lectures

- Lectures are conducted in an "interactive" manner;
  they are not likes listening to the speeches at a ceremony.
- Sit in front rows (unless the classroom is full) and prepared to ask questions (and to be asked). To ask questions, you need to know what are being taught in the class..
- If you are busy with playing around with your mobile devices, please step out from the classroom (quietly). Just as a reminder, the classroom is for those who study the course.
  † if you expect any emergency calls during the class, please notify the instructor in advance.
- Take notes. Again, just sitting in the classroom won't make use of your time.

Lecture Slides

- We will use the slides prepared by the author of the textbook (and the modified version of them). The URLs for these slides are available at the course web site (internal access only).
- You will need to download and make a hard copy of the slides corresponding to each lecture. (or download into your computer if you work on electrical files).
- Lectures slides are merely the collection of figures and tables in the textbook: You need to take notes and write into the lecture slides if necessary.

Exercise Problems

- Exercise problems are related to the materials you learned during the lecture. Taking the textbook and notebook to the lab is essential.
- You can utilize other information source (such as web pages). However, just copy and paste them into your answer sheet is not allowed. Write them in your own words. If explicit "copy and paste" is found, the exercise submission will be void. If repeated, you may receive a severe penalty.
- Upon question, we (instructor and assistant) will not teach you the answers; we help you solve the problems by yourself !!
- Although the late submission policies have been loosened it is highly recommended to work and **complete today's problems within today**.

Few More Things

- No drink or food allowed in the lab. If we see it, we can't ignore it.
- Missing the exercise submissions more than three (four) times before mid-term (final) exam, the student disqualifies the class. One exception is granted if the reason of absence is out of his/her control and proved by an official document (such as doctor's note). **This part may also be changed due to the standardization force**.
- Course Notice Board (`cnotice.oslab.biz`). All notice for this course will be posted on this board. Check regularly and frequently. We also use the Moodle system as you saw in the email few days ago.

Advice from Past Students ?

Please listen to the words of those who completed the class (not those who quitted in few weeks).

About The Instructor

- Assistant Professor in the Operating Systems Laboratory
- Areas of research interests:
  - Computer architecture and operating systems
  - Performance evaluation and workload analysis
  - Energy-efficient system design
  - System-level virtualization
  - Logic Programming (Prolog and ILP), optimization problem (with University of Porto, Portugal).
- Students having interests in the above areas are welcome to join our group. Please talk to the instructor.

Schedule of Today and Next Few Weeks

Today The lecture will cover the Chapter 1 of the textbook, you will work on the exercise problem during 2nd and 3rd periods in the lab.

10/12 The lecture will cover Sections 2.1 and 2.2 of the textbook. The exercise problem(s) are based on Section 2.1.

10/19 No class due to a business trip of the instructor (make-up classes will ba arranged and announced later).

10/26 You will work on the problem(s) based on Section 2.2 in the lab during 2nd and 3rd periods. Prof. Saji Hameed and course assistant(s) will take case of the class.

To study should not be ...

Just swallow course materials and vomit them at the exams.

Rather, it should be like ..

Digest and make them your muscles and blood.

Extra Slides (1)

Who Studies The Operating Systems ?

Extra Slides (2)

Extra Slides (3)

Don't Expect This

Continue to the lecture slides...