

ComS 352 Introduction to Operating Systems Fall 2009

Instructor and TA

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Lectures

Gilman 1652; MWF 3:10-4pm

Recitation / Help Sessions

Thursdays 12:10-1pm Gilman 1810 (for Section 1)

Fridays 12:10-1pm Gilman 1810 (for Section 2)

Textbook

Silberschatz, Galvin, and Gagne, Operating System Concepts, 8th Ed., Wiley

Topics

Chapter 1 & 2: Overview of OS

Chapter 3: Processes

Chapter 4: Threads

Chapter 5: CPU Scheduling

(Midterm Exam 1)

Chapter 6: Process Synchronization

Chapter 7: Deadlocks

Chapter 8: Main Memory Management

Chapter 9: Virtual Memory

(Midterm Exam 2)

Chapter 10: File-System Interface

Chapter 11: File-System Implementation

Chapter 12: Mass-Storage Structure

Chapter 13: I/O Systems

Chapter 14 & 15: Protection & Security

(Final Exam)

Exams

There will be **two midterm exams** and **one final exam**. Midterm exams will be one-hour, in-class exams. The *tentative* exam schedule is **Friday, October 2** for Midterm 1, which will cover Chapters 1- 5. Midterm 2 will be on **Friday, November 13**, and will cover chapters 6-9 or 6-10, depending on the class progress. The final exam will be given according to the University Schedule, which will be announced later. The final exam will cover the remaining material in depth and general concepts from the parts covered by midterms.

All exams will be closed book and closed notes.

Homework

Homework assignments will be announced on every Monday (except the 1st week and the weeks of midterm exams), and will be **due on the following Monday before class begins** (unless stated otherwise). Homework assignments will be discussed during recitation/help sessions.

All homework will be announced electronically on WebCT and must be turned in electronically on WebCT. All homework should be submitted **in PDF or plaintext format (Other formats are not accepted)**.

Programming Projects

There will be **two** programming projects. The following applies to both projects:

- Projects must be turned in electronically by submitting all necessary source code.
- Source code must include proper documentation to receive full credit.
- All projects require the use of makefiles. Graders must be able to build your executable by simply typing make.
- Source code must compile and run correctly on the machine *pyrite*, which will be used by the TA for grading.
- Programs that do not compile may receive zero point.
- Project statements will provide specifications; however, many implementation-specific details will not be specified. You are responsible for resolving these design issues.
- You are responsible for thoroughly testing and debugging your code. Samples given in the project descriptions are for illustration only; the TA will try to break your code by subjecting it to bizarre test cases.

Grading Policy

Your final grade in this course will be based on homework, programming projects, and exams. These will be weighted as follows:

- 30% Homework (10 out of 11 homework assignments; the one with lowest grade will be dropped)
- 20% Programming projects
- 30% (15%*2) Midterm exams
- 20% Final exam

Grading Scale

90% and higher: A
85% and higher: A-
80% and higher: B+
75% and higher: B
70% and higher: B-
65% and higher: C+

60% and higher: C
55% and higher: C-
50% and higher: D+
45% and higher: D
Lower than 45%: F

Optional Research Project and Contest

You are encouraged to conduct an optional research project and attend a research contest, which will be held on the last week of classes. The research project is optional; that is, you are not required to do it. But, if you have completed the project and participated in the contest, you will earn 3% to 10% bonus credits added to your final grade, depending on the quality of your research project.

The research project will be conducted based on a series of simulators that will be introduced in the course. These simulators are java programs that simulate several basic OS functionalities (including process/CPU scheduling, process management, process/thread synchronization, address translation, disk head scheduling, concurrent I/O, etc.). You will need to learn how to use at least one of these simulators in very detail. Applying the basic knowledge you will learn from this course, you will conduct in-depth research on one OS-related topic that you select. You will do theoretic analysis, design experiments (i.e., simulations), perform the simulations by using one of the simulators, collect/analyze experimental data, and write a report of your research results backed up with experimental data. You may even extend/enhance the simulators for your research purpose.

By Monday, November 30 (i.e., the Monday after the Thanksgiving holidays), you should turn in your final research report to be eligible to attend the contest. All submitted reports will be pre-reviewed by the instructor and the TA to select up to five finalists to compete on Wednesday, December 9 (the final contest day), when the champion will be determined. The champion will receive an award. All submitted reports will be graded, and each will earn 3%-10% bonus credits added to the final grade.

Late policy

Homework or programming projects will not be accepted after 72 hours later than the submission deadline. 10% of the full credit of the homework/project will be automatically deducted for submission later by 1 second to 1 day; 20% will be deducted for submission later by 1 day plus 1 second to 2 days; and 30% will be deducted for submission later by 2 day plus 1 second to 3 days.

Research report submitted later than the designated submission deadline will not be accepted.

Appealing policy

Appealing for homework/programming project grades will be first handled by the TA within one week after the homework/project has been returned. For disputes, the student should appeal to the instructor within two weeks after the homework/project has been returned.

Appealing for exam grades will be handled by the instructor. The student should appeal to the instructor within one week after the exam is returned.

Academic Honesty

Homework assignments and projects are individual efforts, not group efforts. While discussion of assignments with other students is encouraged, a level of discussion that produces identical work is prohibited. When discussing code with other students, you may

- discuss algorithms, data structures, and implementation strategies
- discuss the specifics of system calls or APIs
- assist in debugging, possibly by suggesting diagnostic print statements
- copy code given out in class

You may not however discuss algorithms to the level of detail that (almost) completely specifies it.

Accommodation of Disabilities

If you have a disability and anticipate needing accommodations in this course, please contact the instructor within the first two weeks of the semester. Before meeting with the instructor, you will need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building (telephone: 515-294-7220).