COMP7500 Advanced Operating Systems  
Syllabus – Spring 2012  
MWF 8:00 - 8:50am, Shelby Center 1120

Instructor: Dr. Xiao Qin  
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Office Hours: MW 1:00-2:00pm  
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Class Web Page  
Homeworks and announcements are posted on the class web page:  
http://www.eng.auburn.edu/~xqin/courses/comp7500

Handout, assignments, and important course information will be posted periodically on the class web page, which you have to regularly check.

Objectives  
The objectives of this class include:  
1. To understand the state of the art in operating systems and distributed systems, and how to design modern operating systems.  
2. To understand how to engage in systems research in general and operating systems research in particular.  
3. To investigate novel ideas in operating systems through a semester-long research project.

Topics Covered  (These topics may change)  
- File Systems  
- Prefetching  
- Disk simulations  
- Performance evaluation  
- Secure storage systems  
- Energy-efficient storage systems

Exams and Grading  
Mid-term  20%  
Final Exam  20%  
Written Assignments  15%  
Research Project  35%  
Presentation  10%  
A [90, 100], B [80,90), C [70,80), D [60,70), F [0,60)
**Note:** In order to pass the class, you must receive at least 60% credit on the Individual Research Project, regardless of performance on exams.

**Assessment**

Exams: Midterm Exam, Final Exam  
Questions will be derived from lectures, material taught only in class, and from assignments. Question format will be mixed.

Short Homeworks and Activities: 4 homeworks  
These activities will be take-home in nature and designed to reinforce concepts taught in class. An electronic copy may also be necessary (specified in the assignment). Generally, these assignments are designed to be low-risk in the sense that they are designed to assess thinking and effort, rather than to strictly punish errors.

Individual Research Projects:  
Each student is expected to do a project including a written report and an in-class presentation on a topic to be arranged with the instructor. You may be expected to collaborate with other students toward the completion of the research project related to operating systems in general and storage systems in particular.

**Textbook and Reading**

- Tanenbaum, Modern Operating Systems (Background)  
- Silberschatz, Operating Systems Concepts (Background)  
- Lynch, Distributed Algorithms, 004.36 L98d  
- Lynch, et al., Atomic Transactions, 005.74 A88i  
- Bernstein, et al., Concurrency Control and Recovery in Database Systems, 004.35 B53c  
- Casevant & Singhal, Readings in Distributed Computing Systems, 004.36 C33r  
- Ananda & Srinivasan, Distributed Computing Systems: Concepts and Structures, 005.36 D614  
- Filman & Friedman, Coordinated Computing: Tools and Techniques for Distributed Software, 004.36 F48c  
- Andrews, Concurrent Programming: Principles and Practice, 004.65 P48c  
- Jain, The Art of Computer Systems Performance Analysis, 004.24 J25a 004.36

**Attendance**

Class attendance is mandatory. This is a graduate class; therefore, students will have to actively participate in class. It is believed that if you miss many classes (more than 6), there is a strong likelihood that you will not pass the class. Please
notify me in advance if you will attend conferences, research meetings, or the like.

**Cheating**

Unless otherwise specified in writing, all assignments are individual projects. If any assignment permits teamwork, it will be explicitly stated so in the assignment, and the work must be only the work of the people on the team. Students are *encouraged* to work together on homework assignments. However, you have to explicitly acknowledge any help received from other students during the course of the preparation of your homework solutions.

If you make use of ideas obtained from previous work of another person, you must give credit by commenting in your report, explaining where you obtained ideas, what you have used, and who developed the ideas. If you use any code provided by another person, you must obtain permission from the copyright owner, then comment in your code, including a statement explaining where you found the code and who is the author. Failure to follow these rules will be considered a violation of the Academic Honor Code.

**Special Accommodations**

A student in need of special accommodations must bring that need to my attention within the first two weeks of class. The need must be properly documented.

**Study Hints**

- Ask questions in class.
- At the first sign of difficulty, talk to your instructor.
- Form a study group and meet regularly.
- Construct chapter summaries noting concepts, definitions, & procedures.