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Computer Science 5204
Operating Systems
Fall, 2009

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Instructor: Dr. Dennis Kafura
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Office Hours: By arrangement

Class Web Page: http://courses.cs.vt.edu/cs5204/fall09-kafura/

Prerequisites:

This is an introductory graduate level course. It is assumed that each student has taken an undergraduate course in operating systems (equivalent to CS 3204) or has equivalent knowledge of the basic subject matter of operating systems through course work or practical experience. Prerequisite knowledge in operating systems is operationally defined by the following materials:

Operating Systems (H.M. Deitel) Chapters 1-10
Operating Systems Concepts (J. Peterson, a. Silberschatz) Chapters 1-10.
Operating Systems Concepts (A. Silberschatz, P. Galvin) Chapters 1-9.
Operating Systems (W. Stallings) Chapter 1-8.
Modern Operating Systems (A. Tanenbaum) Chapters 1-6.

Knowledge is also assumed of basic concepts in data structures, programming languages, and computer architecture.

Readings: This is a reading intensive class with approximately three required papers assigned per week. All readings are available as PDF files on the class web calendar.

Textbook: There is no required textbook. The web pages list several reference books.

Grading:

First Exam	150 points	Take home, during the week of October 13
Final Exam	150 points	Take home, December 12-15.
Problem Sets	200 points	As assigned
Class Presentations	100 points	As assigned

Recorded Classes: All meetings of the class will be recorded and made available through the class web site in streaming video format. The recorded video will typically be available a few days after the class meeting.

Honor Code: All work is conducted under the rules of the university Graduate Honor Code. This code and other relevant policies are described in detail on the class web pages.

Syllabus

Section	Topics	Date
Interaction	Course Introduction Scheduler Activations	August 25
	Problems with Threads Capriccio	September 1
	SEDA and TAME Concurrency Control in CSP	September 8
	Concurrency control is C# Concurrency theory (π-Calculus)	September 15
	Concurrency theory (π-Calculus) Transactional Memory: hardware	September 22
	Transactional Memory: software	September 29
	Distributed Transactions	October 6
Security	Midterm (take home)	week of Oct. 13
	Protection and Security Cryptographic Security	October 20
	Authentication Authorization (SecPAL)	October 27
Fault Tolerance	Kerberos Time, Event, and Message Ordering	November 3
	Checkpoint-Recovery Uncoordinated Checkpointing	November 10
Virtualization File Systems	Commit algorithms Virtualization concepts	November 17
	Thanksgiving Break	November 24
	Virtualization (Xen, VMware)	December 1
	Google File System Bigtable Peer-to-peer file systems	December 8
	Final Exam (take home)	Dec. 12-15