

# Advanced Operating Systems



**Curriculum – Spring 2005**

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# General References



## ■ **Mandatory**

- [T] Andrew Tanenbaum - Modern Operating Systems
- [AG] George Almasi & Alan Gotlieb – Highly Parallel Computing
- [SG] Abraham Silberschatz & Peter Galvin - Operating System Concepts (6th Edition)
- [PB] Philip Bernstein et al. Principles of Transaction Processing
- [L] Edward Lazowska et al. Quantitative System Performance
- Papers on GPFS & DSF will be distributed

## ■ **Helpful**

- Maurice Bach - Unix Operating System
- David Patterson & John Hennessy - Computer Organization & Design
- John Hennessy & David Patterson - Computer Architecture A Quantitative Approach
- Leonard Kleinrock – Queuing Systems Vol. I & II
- Raj Jain – The Art of Computer Systems Performance analysis

# Goals



- **Get a deeper understanding of operating system design principles**
- **Understand parallel and distributed OS components**
- **Understand performance evaluation techniques**

# Lectures



#	Date	Subject	Ref.
1	20/02/05	Performance Evaluation I	
2	27/02/05	Performance Evaluation II	
3	06/03/05	Multiple Processor Systems I	
4	13/03/05	Multiple Processor Systems II	
5	20/03/05	Parallel Processing I	
6	27/03/05	Parallel Processing II	
7	03/04/05	Parallel Job Scheduling	
8	10/04/05	GPFS	
9	17/04/05	Semantic Filesystems	
10	01/05/05	Object Storage	
11	08/05/05	Embedded OS	
12	15/05/05	Transaction processing I	
13	22/05/05	Transaction processing II	
14	29/05/05	Virtual Machines	
15	05/06/05	Special Seminar	

# Who, When & Where:



## ■ Lectures:

- Sun 8:30 – 11:30 AM Building xxxx Room yyyy
- The exam will be “multiple choice”
- A self assessment will be available before the end of the semester
- The exam will account for a major part but not all of the final grade

## ■ Special Seminar

- Presenting a seminal paper to the class
- Paper can be selected by students but has to be a well known paper
- Paper has to be approved
- Each paper will be presented by 2 students – one will defend the paper, the other will criticize it
- The seminar will account for a part of the final grade
- The seminar is not mandatory

# Prerequisites:



- **Basic OS knowledge is assumed**
- **Understanding C is assumed**
- **Understanding computer structure is very important. Getting through the relevant chapters in the Patterson & Hennessy references is recommended**

# Guest Lecturers



- **Performance Evaluation I and II – Dafna Sheinwald – IBM Haifa Research Laboratory**
- **GPFS – Benjamin Mandler - IBM Haifa Research Laboratory**
- **Semantic Filesystems – Benjamin Mandler – IBM Haifa Research Laboratory**