

University of Jordan
Computer Engineering Department
Course Outline
Computer Performance Evaluation (0907702)

I. Course Description

Issues in Performance Evaluation and Benchmarking. Measurement Tools and techniques, Trace Driven and Execution Driven Simulation. Choice of metrics. Benchmarks. Statistical techniques for Performance Evaluation. Trace Generation and Validation, Synthetic Traces, Verification of Simulators. Design of Experiments. Analytical Modeling of Processors, Statistical modeling, Hybrid Techniques. Application of queuing theory, Markov models and probabilistic models for computer system evaluation. Workload Characterization.

II. Textbooks and References

1. Raj Jain, The Art of Computer Systems Performance Analysis, Wiley, 1991.
2. Hennessy and Patterson. Computer Architecture: A Quantitative Approach, 4th ed., Morgan Kaufmann, 2007.
3. A. Law, Simulation Modeling & Analysis, 4th ed., McGraw Hill, 2007.

III. Student Materials

Textbook, Class Handouts, Online Library, and the Internet.

IV. College Facilities

A classroom with whiteboard and projection facilities, library, and computer laboratory.

V. Instructional Methods

1. Lectures
2. Office Discussions
3. Projects and presentations by the students

VI. Evaluation of Outcomes

1. Mid-Term Exam — 30%
2. Research Report and Presentation — 30%
3. Simulation Project and Final Exam —20% + 20%

VII. Class Policies

- Attendance is required
- All submitted work must be yours
- Cheating will not be tolerated

VIII. Course Outline

The following table contains the list of topics to be covered in the course.

Topic	Textbook Chapters
Overview of Performance Evaluation	1-3
Measurement Techniques and Tools	5-7, 9-11
Simulation	24-28
<i>Midterm Exam</i>	
Probability Theory and Statistics	12-15
Experimental Design and Analysis	16, 17, 19, 20, 22, 23
Queuing Models	30, 31

IX. Schedule

The following table contains the important dates of this course.

Date	Event
Mon 19 Sep 2011	Classes Begin
Mon 17 Oct 2011	Research proposal is due
Mon 24 Oct 2011	Presentations of the research proposals
Mon 7 Nov 2011	Midterm Exam
Mon 14 Nov 2011	Research report is due and start of presentations
Mon 28 Nov 2011	Simulation project proposal is due
Mon 5 Dec 2011	Presentations of the simulation project proposals
Mon 2 Jan 2012	Simulation project report is due and start of simulation project demonstrations
Wed 4 Jan 2012	Last Lecture
Thu 12 Jan 2012	Final Exam (tentative)

X. Sections and Instructors

Sec	Meeting Time	Room	Instructor	Office Hours	e-mail, Homepage
1	Mon, Wed 3:30-5:00	CPE 001	Dr. Gheith Abandah	Mon 11-12 Tue 12-1 Thu 10-11	abandah@ju.edu.jo , http://www.abandah.com/gheith