

**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, 4<sup>th</sup> 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	4-7, 9-11
Simulation	24-28
<i>Midterm Exam</i>	
Probability Theory and Statistics	12, 14, 15
Experimental Design and Analysis	16, 17

## IX. Schedule

The following table contains the important dates of this course.

Date	Event
Mon 17 Sep 2012	Classes Begin
Mon 15 Oct 2012	Research proposal is due
Mon 22 Oct 2012	Presentations of the research proposals
Mon 5 Nov 2012	Midterm Exam
Mon 12 Nov 2012	Research report is due and start of presentations
Mon 26 Nov 2012	Simulation project proposal is due
Mon 3 Dec 2012	Presentations of the simulation project proposals
Mon 31 Dec 2012	Simulation project report is due and start of simulation project demonstrations
Wed 2 Jan 2013	Last Lecture
Thu 10 Jan 2013	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 10-11 Tue 11-12 Wed 12-1	<a href="mailto:abandah@ju.edu.jo">abandah@ju.edu.jo</a> , <a href="http://www.abandah.com/gheith">http://www.abandah.com/gheith</a>