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Section #: 52
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*United Arab Emirates University
Faculty of Science
Department of Mathematical Sciences
Linear Programming – Fall 2008/2009*

General Information:

Course Title: Linear programming **Course Number:** MATH 321 **Credit Hours:** 3

Prerequisites: Linear Algebra I (Math 1402) & Calculus III (Math 2102)

Description of Course: General linear programming problem, Simplex method, the revised simplex method, Duality, parametric linear programming, Sensitivity Analysis, and applications.

Course objectives:

- To understand the origin of linear programming problems.
- To gain insight and skills in solving linear programming problems.
- To explore different techniques and methods to be used.
- To illustrate applications of those techniques and technology to problem solving in science, mathematics, business, and other related areas.

Student Learning Outcomes:

Students will be able to:

- 1) Formulate corresponding linear programming problems.
- 2) Demonstrate ability to integrate knowledge and idea in a coherent and meaningful manner.
- 3) Work effectively with others.
- 4) Analyze the simplex method.
- 5) Demonstrate an understanding for applications of linear programming problems in various fields.
- 6) Locate and use relevant information.

Textbook: Linear programming, second edition, Foundations and Extensions, Robert J. Vanderbei, Kluwer's Academic publishers, Boston, 2001, ISBN: 0-7923-73242-1.

Attendance: Attendance is required for all classes. Students who are absent for any reason more than 15% of required classes are prohibited from participating in subsequent exams and received a grade of "F" for the course.

If you are absent:-

- **3 lectures**, you will receive a **5%** warning.
- **5 lectures**, you will receive a **10 %** warning.
- **7 lectures**, you will receive a **15%** warning and Fail the Course.



METHODS OF STUDENT ASSESSMENT

<i>Exam</i>	<i>Weight</i>	<i>Date</i>	<i>Time</i>	<i>Material Covered</i>	<i>Exam Location</i>
1 st Test	15 %	To be announced	During class hours	To be announced	In class room
2 nd Test	15%	To be announced	During class hours	To be announced	In class room
Midterm	20%	28 June 2006	During class hours	To be announced	In class room
Final	40%	18 July 2006	8:00 am to 10:00 am	To be announced	To be announced
Quizzes	10%	To be announced	During class hours	To be announced	In class room

Grading System

Percentage	Letter Grade	Points
90% – 100 %	A	4
85% - 89%	B+	3.5
80% - 84%	B	3
75% - 79%	C+	2.5
70% - 74%	C	2
65% - 69%	D+	1.5
60% - 64%	D	1
Less than 60%	F	0

	Material	Number of weeks
1	General linear programming problem, Formulations, and Graphical methods	Two weeks
2	Simplex method and its variations.	Two weeks
3	Revised and two-phase simplex methods	Two weeks
4	Duality	One week
5	Equivalence	One week
6	Parametric linear programming	Two weeks
7	Sensitivity Analysis	Two weeks
8	Applications.	Two Weeks

Weighting of Assessment

Class work	:	10 %
Assignments	:	10 %
Midterm exam	:	20 %
Quizzes	:	15 %
Practical projects	:	5 %
Final Exam	:	40 %
Total	:	100%