



جامعة دبي
UNIVERSITY of DUBAI

COLLEGE OF BUSINESS ADMINISTRATION

Pre-MBA Course Syllabus
Semester:

Course code & No.: PMBA 510

Course Title: Analytical Tools for Decision Support

Prerequisites: None

Faculty Member:

Contact Details: Email:; Phone:

Class Hours: Time: Days: Room:

Office Hours: Time: Days: Room:

Brief Course Description: (As in UD Graduate Catalog)

The course develops students' statistical, quantitative and analytical skills that are required for PMBA. Topics include descriptive statistics, probability distributions, linear regression analysis (simple and multiple), interval estimation, hypothesis testing, statistical inference, decision analysis, project management, queuing theory, linear programming, transportation and assignment models, make or buy decisions.

Course Objectives (CO): Upon completion of this course, students should be able to:

1. Demonstrate statistical, quantitative and analytical skills required for MBA
2. Use statistical and quantitative techniques in support of decision making

Course Learning Outcomes (CLO):

Upon completion of this course, students should be able to demonstrate the following outcomes:

1. Compute, summarize and present data in support of managerial decision making
2. Estimate, test hypotheses and make meaningful inferences from data that arise in managerial decision making
3. Perform data analysis using commonly applied techniques in support of managerial decision making
4. Develop, implement and test quantitative models of data in order to support managerial decision making
5. Apply and Evaluate optimization techniques commonly used in support of managerial decision making

This course assesses the following BBA Skill Areas:

Critical, quantitative & analytical skills required for MBA.

Blooms Taxonomy

(The following levels of Bloom's taxonomy have been used while developing the above CLO)

Bloom's level	1.Knowledge (K)	2.Comprehension (C)	3.Application (AP)	4. Analysis (AN)	5. Synthesis (S)	6.Evaluation (E)
CLO #	1,2	1,2	3,4	3,4	4,5	5

CLO Mapping: This table maps CLO's to: CO

CLO	Linked to CO	MBA PO
1	1	3
2	1	3
3	2	3
4	2	3
5	2	3

CLO Assessment Scheme

CLO	Class Work (marks)		Final Exam (marks) 30%
	Case Assignment/ Quiz 35%	Group Project 35%	
1	10		6
2	10		6
3		15	6
4	10		6
5		15	6
Presentation		10	
Total	30	40	30

Each PMBA course is assessed by a combination of class work (assignments/ quizzes, group work, simulations), and an examination. Class work constitutes 70% of the course grade and one examination at the end constitutes 30% of the course grade. The minimum required cumulative grade point average for MBA is 3.00 out of 4.00. Each course grade is distributed as under:

% Marks	Grade	Quality Points
> 95	A	4.0
90-94	A-	3.7
87-89	B+	3.5
83-86	B	3.0
80-82	B-	2.7
75-79	C+	2.5
Below 75	F (Fail)	0

Case Assignment

The instructor will assign a set of problems/assignments each week. The problems/assignments will be generally adapted to the local environment of UAE/GCC/MENA. These assignments will require data analysis, interpretation, and recommendations to management. In some cases students will be required to present results of their analysis. Each student is expected to spend about 105 hours out-of-class time on readings, assignments, and problem solving as follows:

Out-of-Class Time

Assignments and Cases	Approximate Out-of-Class Time
Assignment (individual assignment)	15 hours
Assignment (individual assignment)	25 hours
Problem Solving	24 hours
Preparation for Presentation	10 hours
Readings (textbook, journal articles and supplemental readings)	36 hours

Teaching Methods: Teaching methods used in this course are interactive learning, lectures, case studies, and solving analytical problems

Use of Modern Instructional Technology: Excel will be used as the primary software in the course. Moodle will be used to enhance and facilitate learning through communication and practice. Other software which may be deemed important to support specific cases of data analysis will be introduced e.g. SPSS.

Advanced Analytical Tools for Decision Support Weekly/Daily Teaching Plan

Day Week	Day/ Week of	Topic	Ch	Contents	Relation to CLO	Assessment	Assignment / Reading
1	Introduction Descriptive Statistics Index Numbers Probability Concepts and Application Probability Distributions	Ch 2,3 (ASW) Ch 17 (ASW) Ch 4 (ASW) Ch 5,6 (ASW)	Undertake a review on: Descriptive statistics <ul style="list-style-type: none"> Measures of location Measures of variability Measures of association Index numbers <ul style="list-style-type: none"> Price relatives Aggregate price indexes Deflating a series by price indexes Probability concepts <ul style="list-style-type: none"> Relationships of probability Conditional probability Baye's theorem Probability distributions <ul style="list-style-type: none"> Characteristics of probability distributions Discrete probability distributions Continuous probability distributions 	1	Individual Assignment-1 Final Exam	Assignment based on descriptive, probability and distributions
2	Interval Estimation Hypothesis Testing Statistical Inference	Ch 8 (ASW) Ch 9 (ASW) Ch 10,11 (ASW)	Understand the notion of interval estimation <ul style="list-style-type: none"> Population mean: standard deviation known Population mean: standard deviation unknown Determining the sample size Population proportion Learn hypothesis testing <ul style="list-style-type: none"> understanding hypothesis testing procedure Type I and type II errors Population mean: Standard deviation known Population mean: Standard deviation unknown Population proportion Hypothesis testing and decision making Understand statistical inference <ul style="list-style-type: none"> Inference about the difference between population means Inference about population variances 	2	Individual Assignment-2 Final Exam	Assignment based on interval estimation, hypothesis and statistical inference
3	Simple Linear Regression (Two Variables)	Ch 14 (ASW)	Introduction to linear regression <ul style="list-style-type: none"> The simple linear regression model Introduction to parameter estimation in simple linear regression (least squares method) Classical assumptions and properties of the least squares estimators 	3	Group Assignment-1 Final Exam	Assignment based on simple linear regression

				<ul style="list-style-type: none"> Using regression for estimation and prediction. 				
4	.....	Multiple Regression Model	Ch 14,16 (ASW)	<p>Understand multiple regression analysis</p> <ul style="list-style-type: none"> The multiple regression model Introduction to parameter estimation in multiple linear regression (Least squares method) Classical assumptions and properties of the model Testing for significance (including goodness of fit). Using regression for estimation and prediction. 	3		Assignment based on multiple regression
5	.....	Decision Analysis	Ch 21 (ASW) Ch 4 (ASWM) Ch 8 (BRS)	<p>Introduction to decision analysis</p> <ul style="list-style-type: none"> Problem formulation Decision making under uncertainty Decision making under risk (with probabilities) Decision analysis with sample information 	4	Individual Assignment-3 Final Exam	Assignment based on decision analysis
6	.....	Project Scheduling/Management	Ch 12 (ASWM) Ch 7 (BRS)	<p>Understand use of project management in:</p> <ul style="list-style-type: none"> Introduction of PERT/CPM project scheduling technique (under certain & uncertain times) Determination of critical path and critical activities. Determining probability of project completion within a specified time period. Understand project crashing (time-cost trade-off) 	4		Assignment based on project scheduling
7	.....	Modeling Waiting Time (Queuing theory)	Ch 14 (ASWM) Ch 9 (BRS)	<p>Understand how waiting time models help evaluate the cost and effectiveness of service systems</p> <ul style="list-style-type: none"> Structure of a waiting line system Single-channel waiting line Multiple channel waiting line model 	4		Assignment based on waiting time Simulation
8	.....	Linear Programming	Ch 8,9 (ASWM) Ch 2,3,4 (BRS)	<p>Understand Linear Programming (LP)</p> <ul style="list-style-type: none"> Assumptions and properties of LP Formulating LP problems (using graphical approach techniques) Sensitivity analysis 	5	Group Assignment-2 Final Exam	Assignment based on linear programming
9	.....	Transportation and Assignment Models	Ch 10 (ASWM) Ch 5 (BRS)	<p>Learn how the LP formulation can be extended to determine optimal solutions in:</p> <ul style="list-style-type: none"> Transportation problems Assignment problems 	5		Assignment based on transportation and assignment problems Simulation
10	.....	Make or Buy Decisions	Ch 8 (ASWM)	<p>Learn how the LP formulation can be extended to:</p> <ul style="list-style-type: none"> Solve make or buy decisions <p>Present Team reports</p>	5 3 & 5		
11	Final exam (Comprehensive).							

Educational Resources

Educational Resource	Description
Text Book required	<p>Statistics for Business and Economics – 10th edition, By David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams ISBN 0324658370, 2008 . (ASW)</p> <p>Managerial Decision Modeling with Spread sheets, by Balakrishnan, Render & Stain, 2nd edition, Prentice Hall, 2007. ISBN-13: 978-0132268066. (BRS).</p> <p>Quantitative Methods for Business, 11/e 2008, David Anderson, Dennis, Sweeney, Thomas Williams, Kipp Martin, Thomson South-Western. (ASWM)</p>
References	<p>Quantitative Analysis for Management, 10/e (2008), Barry Render and Ralph M. Stair, Jr. Prentice Hall ISBN 0-13-078386-2</p> <p>Quantitative Decision Making With Spreadsheet application: 7e. Lapin and Whisler, (2002) Thomson Learning: www.duxbury.com</p> <p>Basic Statistics for Business & Economics - 6th edition, By Lind, Marchal and Wathen, ISBN 978-007-126365-8.</p>
Software	Excel will be used as the main software in problem solving. Other will include SPSS.