جامعة دبي
UNIVERSITY of DUBAI

COLLEGE OF BUSINESS ADMINISTRATION
MBA Course Syllabus
Semester: ……

Course code & No.: MBA 625
Course Title: Advanced Analytical Tools for Decision Making
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 advances students' ability to think, adapt, build, apply, evaluate and conduct analysis using statistical and quantitative techniques in support of business decision making. Topics include tests of goodness of fit, ANOVA, regression analysis (model building), limited dependent estimation techniques, regression analysis with time series data, pooling time series and cross sectional data, forecasting, non parametric methods, decision analysis, linear programming, transportation, assignment and transshipment models, project management and queuing theory.

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

1. Improve statistical and quantitative reasoning ability for business decision making.
2. Adapt, develop, analyze and apply statistical and quantitative tools for improved decision making.

Course Learning Outcomes (CLO):
Upon completion of this course, students should be able to demonstrate the following outcomes (With linkage to CO):

1. Estimate and test hypothesis from data that arise in managerial decision making
2. Model and conduct data analysis in support of managerial decision making
3. Estimate and make statistical forecasts in support of managerial decision making
4. Develop, implement and test quantitative models in order to support managerial decision making
5. Evaluate and apply optimization techniques commonly used in support of managerial decision making

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

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

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 35%	Group Project 35%	
1	5	5	6
2	5	5	6
3	6	6	6
4	7	7	6
5	7	7	6
Presentation		10	
Total	30	40	30

Each MBA 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. 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
Below 80	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 hour's 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 & solving analytical problems using excel.

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 Making Weekly/Daily Teaching Plan							
Day Week	Day/ Week of	Topic	Ch	Contents	Relation to CLO	Assessment	Assignment / Reading
1		Tests of Goodness of Fit and Independence Analysis of Variance and Experimental Design	Ch 12 (ASW) Ch 13 (ASW)	Tests of goodness of fit and independence • Goodness of fit test • Test of independence Analysis of variance and experimental design • Introduction to analysis of variance • Introduction to experimental designs	1	Quiz Individual assignment Final Exam	Assignment based on test of goodness of fit and test of independence Assignment based on ANOVA
2	…….	Linear Regression Analysis Qualitative and Limited Dependent Estimation Techniques	Ch 14,15, 16 (ASW)	Linear regression analysis • Regression analysis (review of simple and multiple linear regression) • Regression analysis: model building Relaxing the assumption of the classic models • Multicollinearity • Heteroskedasticity • Autocorrelation Qualitative and limited dependent estimation technique • Models with binary dependent variable • Other models with qualitative dependent variables such as logit, probit and tobit	2	Quiz Individual assignment Final Exam	Assignment based on regression analysis Assignment based on limited dependent estimation technique
3	…….	Regression Analysis with Time Series Data Pooling Time Series and Cross Sectional Data		Regression analysis with time series data • Stationary time series • Spurious regressions • Unit root tests • Co-integration (long-run relationship) Pooling time series and cross sectional data • Model specification • Model estimation techniques • Prediction using pooled data	3	Quiz Group assignment Final Exam	Assignment based on: regression analysis with time series data as well as pooled time series and cross sectional data
4	…….	Forecasting	Ch 18 (ASW) Ch 11 (BRS)	Understand application of forecasting in business • Components of a time series • Smoothing methods • Trend and seasonal components • Regression analysis			Assignment based on forecasting
5	…….	Non Parametric Methods	Ch 19 (ASW)	Non parametric methods • Sign Test • Wilcoxon Signed-Rank Test • Mann-Whitney-Wilcoxon Test • Kruskal-Wallis Test • Rank Correlation	4	Quiz Individual assignment Final Exam	Assignment based on non parametric methods

6	…….	Linear Programming Transportation, Assignment and Network Models	Ch 2,3,4 (BRS) Ch 8,9 (ASWM)	Understand linear programming models • Graphical and computer methods • Linear programming modeling applications: with computers • Linear programming sensitivity analysis			Assignment based on linear programming
7	…….		Ch 5 (BRS) Ch 10 (ASWM)	Advanced application of LP in: • Transportation problems • Assignment problems • Transshipment problems			Assignment based on transportation and assignment models
8	…….	Project Management	Ch 7 (BRS) Ch 12 (ASWM)	Understand use of project management in: • Application of PERT/CPM project scheduling technique in determining slack, critical path and critical activities (under uncertain times). • Determining probability of project completion within a specified time period. • Understand project crashing (time-cost trade-off) • Advanced approach in project crashing			Assignment based on project management
9	…….	Decision Theory	Ch 8 (BRS) Ch 4 (ASWM)	Understand decision analysis as applied to: • Decision making under uncertainty (without probabilities) • Decision making under risk (with probabilities) • Computing branch probabilities using Baye's theorem • Risk analysis and sensitivity analysis • Decision analysis with sample information	5	Quiz Group assignment Final Exam	Assignment based on decision theory
10	……	Queuing Models	Ch 9 (BRS) Ch 14 (ASWM)	Understand how waiting time models help evaluate the cost and effectiveness of service systems • Structure of a waiting line system • Single-channel waiting line • Multiple channel waiting line model • Extension to advanced models			Assignment based on queuing model Simulation
11	Final exam (Comprehensive).						

Educational Resources

Educational Resource	Description
Text Book Required	Managerial Decision Modeling with Spread sheets, by Balakrishnan, Render & Stain, 2nd edition, Prentice Hall, 2007. ISBN-13: 978-0132268066. (BRS). Statistics for Business and Economics – 10th edition, By David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams ISBN 0324658370, 2008 . (ASW) Quantitative Methods for Business, 11/e 2008, David Anderson, Dennis, Sweeney, Thomas Williams, Kipp Martin, Thomson South-Western. (ASWM)
References	Quantitative Analysis for Management, 10/e (2008), Barry Render and Ralph M. Stair, Jr.Prentice Hall ISBN 0-13-078386-2.
Supporting Reading (Journals available from EBSCO/pro Quest at UD library through remote access)	Selected readings from: *Harvard Business Review* INFORMS, *Journal of Operation Management Science*
Software	Excel will be used as the main software in problem solving. Others may include SPSS