

FORM 1 - COURSE SYLLABUS
Professor: Kenneth D Lawrence
Course: MGMT 216-003
E-Mail: carpetfour@yahoo.com

HD: MGMT 216-003 Fall 2016 - Aft
Time/Place: Th 1:00 - 3:55 PM
Classroom: Mall PC 40
Phone: 973-596-6425

Student Meeting Times:

Th 4:00 - 5:30 PM

Other Meeting Times: At agreed-to appointment times

I. COURSE PREREQUISITS (Required)

Math 105, Elementary Probability and Statistics or
Math 333, Probability and Statistics

II. COURSE OBJECTIVES

Introduction to statistical and data analysis techniques used in management decision making through an active learning approach.

III. COURSE DESCRIPTION

Introduction to statistical techniques and business analytics used in management decision making. Develop the concepts of statistical data analysis and use with the statistical package Minitab 17.2.

IV. COURSE LEARNING GOALS (1,2,3,5) AND LEARNING OUTCOMES (1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 5.1)

1. To draw conclusions about the given data and how it can be used in the modeling process with decision process in various aspects of management (Analytical and problem solving skills; communication skills; interpersonal skills; team dynamics; ethical skills).
2. To improve decision processes with decision process in areas of management decision making (Analytical and problem solving skills; communication skills; interpersonal skills; team dynamics; ethical skills).
3. To obtain reliable forecasts of variables of interest (Analytical and problem solving skills; communication skills; interpersonal skills; team dynamics; ethical skills).
4. To effectively use computerized-methods of quantitative analysis (Minitab 17.2 software; Technological skills).
5. To effectively analyze realistic business cases requiring quantitative analysis and computerized methods of analysis (Analytical and problem solving skills; communication skills; interpersonal skills; team dynamics; ethical skills).

V. CLASS POLICY AND REQUIREMENTS

1. To maximize the educational benefit of this course (an active learning course), the student has the responsibility to keep a timely and quality level of knowledge of all reading assignments, problem assignments, case assignments, and computer assignments, as well as be thoroughly prepared for each class. This requires the student, on an ongoing basis, to prepare outside the regular class meetings. Furthermore, Minitab 17.2 software provides a thorough and complete Help Command (with actual examples). Text website can be found at www.pearsonhighered.com/groebner. Included by chapter are the following: learning outcome, Minitab datafiles, Minitab tutorial, self-study quizzes.
2. Demonstrated knowledge of Minitab 17.2 software is required.
3. There are no make-up quizzes, exams or projects.
4. To fulfill and complete the course requirements, all work must be completed.
5. Regular class attendance is essential.
6. Participation in case projects, computerized exercise presentations, and a term project is required and is a significant part of the grade.
7. Incomplete grades are rarely given, only under the most special circumstances and must be completed within approximately one month from the normal closing of grades. Additionally, in order to qualify for an incomplete, at least 50% of the course must be completed.
8. The NJIT Honor Code will be upheld.

VI. Authentic Assessment

1. The measures of performance in this class will be referred to as authentic assessments. That is, student performance is evaluated based upon realistic types of business problem assignments, given in a take-home environment (during the term projects, exercises and an examination.) This is in sharp contrast to the types of assessments based on short-answer questions in a timed environment. Clearly this type of assessment will provide the student the same type of environment as s/he will have during his/her professional business career.
2. During the term, case studies, the term project, quizzes, and examinations will consist of the following materials in the write-up and in-class presentations as part of a work group:
 - a. Detailed discussion of the business problem
 - b. Detailed discussion of the data analysis techniques used
 - c. Detailed discussion of the data used
 - d. Detailed discussion of the analytical techniques used
 - e. Detailed discussion of the computerized procedure used in Minitab 17.2 software
 - f. Discussion of the results of the analysis
 - g. A set of PowerPoint overheads

VII. Active Learning Process of MGMT 216

1. It is assumed that in this course, the students are active and informed participants in the groups that work on the quizzes and projects with regard to problems, cases, and computer exercises. Their individual work includes his/her active participation in the solution of presentations and write-ups of the quizzes and projects and the sole participation in the final examination process. The process of active learning serves to provide a realistic view of the educational process, which simulates the real business world environment, rather than a sterile, purely academic environment of learning material, memorizing processes and techniques and taking in-class examinations. In addition, the students become knowledgeable in the presentation of material through the use of PowerPoint presentations and in precise writing in a business-like manner of quizzes and projects, which correlate with the processes that are experienced by students in the workplace. This type of active learning process, rather than a pure lecture environment, parallels the environment found at the very best rated business programs in the United States and the world. Thus, this course is not directed toward the passive learner who wants a training course.

XIII. COURSE GRADE

A. Term Project Take Home

1. **Part 1**, Development of Data Structure for Use with the Term Perfect
2. **Part 2**, Term Project Forecasting with Simple Linear regression Model, (10% of grade)
3. **Part 3**, Term Project Forecasting with Multiple Regression Model, (15% of grade)

Forecasting Term Project Data

1. Review Minitab tutorials (HELP) and run
2. Review Regression and Forecasting tutorials
3. Implement the help examples on the Minitab 17.2 Help command:
for regression and time series models
4. Building a Minitab worksheet for forecasting the price of your assigned Mutual fund. The dependent variable is the cost of your mutual fund. The explanatory variables X_i are:

a-the number of the month in which the mutual fund NPV was recorded in
b-monthly gdp
c-oil price per barrel per month
d-unemployment rate per month
e-consumer price index per month
f-Dow-Jones average per month
g-Standard and Poors average per month
h-NASDAQ average per month

B. During the Term Take Home Examination

1. **Part 1**, use of Minitab 17.2 for Regression Model
2. **Part 2**, Simple Linear regression Modeling (10% of grade) with Minitab 17.2
3. **Part 3**, Multiple regression Modeling (15% of grade) with Minitab 17.2

C. Final Examination: Take Home (50% of grade)

1. The final examination will be sent to the students via E-Mail with appropriate directions and completion times. The completed final examination will be returned via E-Mail to carpetfour@yahoo.com. The format of the message must be with TXT (ASCII), with the questions answered in order 1, 2, ..., n. No attached files are accepted. The student's name and class must be given. Examinations submitted in any other format will not be accepted for grading. If it is sent in another format (i.e., Word, Excel, etc.), which cannot be read, then it is still considered late and therefore unacceptable.

2. In order to verify the timely arrival of examination answers, the student needs to cc the E-Mails sent to him/her. No other method of verification is acceptable.

3. Those examinations received after the due date will be penalized one letter grade for missing the due date of the examination. There is an additional letter grade penalty for each Day late. The letter grades for quizzes, projects, etc., will also will be penalized according to the schedule: first Day late: 1 letter grade; between 2 and 7 Days late, another letter grade; more than 7 Days later, an additional letter grade for each Day late is the penalty.

4. Lateness penalties, as described for examinations, will also be invoked for case studies and computerized exercises, term project, written and oral presentations and quizzes.

IMPORTANT NOTE: Using only printouts of the software or writing an answer to a question in case studies, term projects, quizzes, and exams is totally unsatisfactory. You must include detailed discussion and analysis as given in 14a-14f above.

Course Grades are based on (outcomes):

1. Timely and complete receipt of examinations
2. Complete and thorough receipt of examinations
3. Correct and quality receipt of examinations
4. Quality and timely presentations of examinations

Course Grade Components by Examination/Term Project

- a. Forecasting Grade component
1. Model Formulation
 2. Minitab 17.2 Analysis and Validation
 3. Analysis of Integration of Fit Forecasting

Forecasting is the process of predicting what the future will be like. Quantitative forecasting techniques are based on statistical methods for analyzing quantitative historical data. Determining the appropriate forecasting model is a challenging task. The modelling process consists of model specifications, model building and model diagnosis.

Model Specification is the process of selecting the forecasting techniques to be used in a particular situation.

Model Building is the process of estimating the specified model's parameters to achieve an adequate fit of the historical data.

Model Diagnosis is the process of determining how well a model fits past data and how well the model's assumptions appear to be satisfied.

Two types of forecasting models will be examined. The first of these is regression modeling, and the second is time series modeling.

Examinations and Projects Process

1. The examination will be sent to the students via E-Mail with appropriate directions and completion times. The completed final examination will be returned via E-Mail to **carpetfour@yahoo.com**. The format of the message must be with TXT (ASCII), with the questions answered in order 1, 2, ..., n. No attached files are accepted. The student's name and class must be given. Examinations submitted in any other format will not be accepted for grading. If it is sent in another format (i.e., Word, Excel, etc.), which cannot be read, then it is still considered late and therefore unacceptable.

2. In order to verify the timely arrival of examination answers, the student needs to cc the e-mails sent to him/herself. No other method of verification is acceptable.

3. Those examinations received after the due date will be penalized one letter grade for missing the due date of the examination. There is an additional letter grade penalty for each day late. The letter grades for quizzes, projects, etc., will also will be penalized according to the schedule: first day late: 1 letter grade; 2 days late, another letter grade; more than 3 days later, an additional letter grade for each day late is the penalty.

4. Lateness penalties, as described for examinations, will also be invoked.

IMPORTANT NOTE: Using only screenshots of the software or writing an answer to an exam is totally unsatisfactory. You must include detailed discussion and analysis as given above.

IX. Course Software Documentation

Also, thorough and complete details in the use of for Minitab 17.2 software, and PowerPoints have been emailed to the class.

Minitab 17.2 is to be downloaded to your PC from NJIT Information Services and Technology. The website is <http://lst.njit.edu/software/index.php>. Direct your questions on the download to 973-596-2900; then click on Help on the Minitab Menu Bar; then cursor down to Stat Guide and select Basic Stat, Regression, etc. Use of the Help function is essential.

Minitab 17.2 is a statistical package of choice across numerous sections of industries including education and finance. Correctly using Minitab statistical tools is an essential part of good decision-making and allows you to achieve target results while displaying charts, and a powerful analysis will also communicate your results more effectively.

In this course, we will use regression and modeling the relationship between x and including the following:

- 1.visualizing simple regression with fitted line plots
- 2.running regression
- 3.multiple regression with linear predictors
- 4.model selective tool, such as the best subsets regression.

Using time series modeling, we will look at forecasting data by:

1. Fitting a trend to data
2. Making time series predictions with trends.

Minitab data analysis provides the student with a critical skill of significant value to potential employers.

X. Course Material

1. REQUIRED TEXT

Groebner, **Business Statistics**, 9th Edition, Prentice-Hall, 2014, ISBN 13 978-0-13-302184-4

2. PowerPoints from Groebner text

3. YouTube Links on:

- a. Minitab use
- b. Regression Modeling
- c. Time Series Modeling

4.Minitab Help Commands:

- a. Data Manipulation
- b. File Construction
- C. Data Analysis
- d. Regression Modeling
- e. Time Series Modeling

UCID - All students are required to have a UCID with is associated e-mail account. Course communication from the professor to the student will require its use as mandatory.

XI. COURSE TOPICS

Week	Topic	Groebner Chapters
	I. Introduction:	
1	A. Where, Why and How of Data Collection	1
2	B. Graphs, Charts, Tables: Describing Your Data	2
3	C. Describing Data Using Numerical Measures	3
	II. Regression:	
4-6	A. Introduction to Linear Regression and Correlation Analysis	14
7-10	B. Multiple Regression Analysis and Model Building	15
	III. Forecasting:	
11-14	Analyzing and Forecasting Time Series Data	16

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