MGT 337: Business Analytics II

Term: 2021 Summer Session Instructor: Staff Language of Instruction: English Classroom: TBA Office Hours: TBA
Class Sessions Per Week: 5 Total Weeks: 5 Total Class Sessions: 25 Class Session Length (minutes): 145 Credit Hours: 4

Course Description:

This course is a continuation of the study of Business Analytics Ⅰ. We will further explore concepts and models using in business data analysis to help business decision making, with emphasis on the combined application of algebra, geometry, and excel solver to make prediction in business. Topics discussed will cover: sampling and sampling distribution, estimation, hypotheses testing, statistical inference with regression and linear optimization. Students successful completing this course are expected to apply business analytics tools and models to analyze business problems and support business decision making in the real business world.

Course Materials:

1. **Textbook:**
   a. **Business Analytics, Data Analysis and Decision Making,** 6th edition, by S. Christian Albright and Wayne L. Winston, Cengage Learning, 2016
   b. **Essentials of Business Analytics**, 1st Edition, by Camm, Cochran, Ohlmann, Anderson, Sweeney, Williams, South-Western/Cengage Learning, 2015
2. **Laptop**
   Latest version of Excel shall be installed

Course Format and Requirements:

Class time will be used for a combination of lectures, case study and discussion.

Please bring your laptop to the class, students attend this business analytics course shall be equipped with proficiency in Microsoft office software, especially the Excel.

Attendance:

Attendance at lectures is vital to get a thorough understanding of the material, but I will not check-up on you by circulating an attendance roster. Good attendance will be rewarded, however, in that all quiz questions and most exam questions will be drawn from the lectures. Furthermore, only those who attend class can earn points for participation.

Grading Scale:

A+: 98%-100%
A: 93%-97%
A-: 90%-92%
B+: 88%-89%
B: 83%-87%
B-: 80%-82%
C+: 78%-79%
C: 73%-77%
C-: 70%-72%
D+: 68%-69%
D: 63%-67%
D-: 60%-62%
F: Below 60%

Course Assignments:

Quizzes:

Throughout the semester, students will have 6 in-class quizzes. The formats include multiple choices and True/False. The lowest grades of the semester will be dropped.

Case Study

There will be several case study topics presented in the lecturing. Students shall participate the case study discussion in the class and put forward their individual thinking. At the end of this

semester, students shall choose one case study topic which they think they are quite interested in to produce a case study report about 600-800 words in length. This report is an individual task and must be completed by the student individually. The final grade is depend on the class participation (5%) in case study discussion and final report (10%).

Exam：

The two midterm exams and final exams will consist of objective questions in multiple choice, short answers, and/or essays. All exams will be close-book.

Course Assessment:

Quizzes	15%
Case study	15%
Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam	30%
Total	**100%**

Course Schedule:

Week	**Topics**	**Activities**
1	Go through syllabus Course overview Review on the Business Analytics 1 Sampling and Sampling Distribution: Sampling terminology; Methods for selecting random samples; Sampling Distributions for Proportions The Sampling Distribution of the Sample Mean Central Limit Theorem Summary of key ideas for Simple Random Sampling Estimation theory: Concepts of estimation	Quiz 1 Case study 1

	Point estimation	
2	Estimation theory: Confidence interval estimation Sample size estimation Hypothesis Testing Concepts in Hypothesis Testing Null and alternative hypotheses One-tail Versus two-tail tests Types of errors Type I and Type II errors and their probabilities Hypothesis test and confidence Interval Practical Versus Statistical Significance Hypothesis tests for a population mean Hypothesis tests for a population proportion	Quiz 2 Case study 2 Midterm Exam 1
3	Comparison of two population means Comparison of two population variances (F-tests) Analysis of variance Test of independence Testing equality of two independent samples (t-tests) Test for normality (Chi-square goodness-of-fit test) Chi-square Test of Independence Data analysis and statistical functions in Excel Regression: Introduction to Inference within Regression; Corrections and Linear Relationship	Quiz 3 & Quiz 4 Case study 3

4	Simple linear regression and Corrections: Simple linear regression model Least Square Methods Estimation of coefficients Assessing the Fit of the Simple Linear Regression Model Using excel's regression tool to develop the estimated regression equation and make estimation and prediction in business Multiple linear regression: Inference and Regression The multiple regression model Least squares Method and Multiple Regression Estimation of coefficients Assessing the model	Quiz 5 Case Study 4 Midterm 2
5	Multiple linear regression: Using excel's regression tool to develop the estimated multiple regression equation and make estimation and prediction in business Data analysis and statistical functions in excel Linear optimization: Data Sampling, preparation, and partitioning A simple maximization problem A simple minimization problem Sensitive Analysis Integer linear optimization models Solving Integer Optimization Problems with Excel Applications involving Binary Variables Modeling Flexibility provided by Binary Variables Use of Excel Solver to solve problems with more than two decision variables	Quiz 6 Final exam

	Course Summary for this semester Review for final **Case study report due**	

Academic Integrity:

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Shanghai Normal University's *Academic Conduct Code.* Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.