

MGT 203B - Forecasting & Managerial Research Methods (II)

PREREQUISITE:	MGT203A
LECTURES:	Tuesday 9:00 a.m.-11:50 a.m. 1213 Gallagher Hall
INSTRUCTOR:	Chih-Ling Tsai 3210 Gallagher Hall 752-8565 cltsai@ucdavis.edu
OFFICE HOURS:	Monday 3:30 p.m. -4:30 p.m. Thursday 10:30 a.m. -11:30 a.m. or by appointment
TEXT:	<u>Statistics for Management and Economics</u> , Eleventh Edition, by Gerald Keller.
APPROXIMATE MATERIAL TO BE COVERED	GK: Chapters 14-21 (see the last page for details)
IMPORTANT DATES:	Tuesday, 1/8/19 First day of class Tuesday, 2/12/19 Midterm (closed book) Tuesday, 3/19/19 Final Exam (open book)
NOTES and HANDOUTS:	Please purchase them from the UCD bookstore.
COMPUTER PACKAGE	MINITAB (version 18) is used for the class. You can rent it from the website: http://www.onthehub.com/minitab/ You may use Excel to do homework, but some problems are needed to be done by Minitab
HOMEWORK:	Homework problems will be assigned on a weekly basis.
GRADING:	Midterm 30% Final 40% Homework 30%

Course Objectives:

1. Exhibit the GSM principle: Be able to explain Statistics (S) to your Grand Mother (GM); hence GSM. In other words, explain concepts and convey data analytic results to your classmates, boss, colleagues, staff or customers in layman's terms while applying statistical concepts and techniques.
2. Be able to use what you have learned from this course to conduct data analysis and to evaluate results by yourself.

Additional Information:

Following are some helpful suggestions as well as a few notes that I use when I conduct my classes. Please pay particular attention to the dates and times of the midterms, homework assignments, and the final exam in the syllabus. With your effort and cooperation, Winter Quarter will be a success.

Suggestions:

- I will interview each of you during this quarter. Thus, I can understand your background, abilities, and expectations of the course. I also appreciate your suggestion and comments regarding this course. The interviewing schedule is listed as follows:

<u>Class number</u>	<u>Week</u>
1-8	1st (January 9-12)
9-24	2nd (January 15-19)
25-45	3rd (January 22-26)

- The **class number** will be assigned at the first day of my lecture. If you could not find your class number, please see me as soon as you can.
- If you **fear** statistics or your performance in MGT 203A was not **satisfactory**, please see me within the **first** week.
- Please review lecture notes and the textbook after **each** lecture. Homework should also be done as soon as possible.
- If you have any problems in understanding the material, please **DO NOT HESITATE TO ASK ME FOR HELP**. I am available whenever you need help (including weekends). However, I encourage you to study first before you come to see me.

- After you finish each Chapter, please **review** the material again and **summarize** what you have learned. Ask yourself, what is the relationship between each Chapter? Do some practice problems to help you **understand** the material rather than just **memorize** the material.
- Please write your homework **clearly** and **print** your name and the **class number** at the top of the right hand corner on the first page of your homework assignment. In addition, please **staple** your homework.

Notes:

- Assignments may be done in groups of no more than **three** students; only **one** copy of a group assignment need be handed in. However, **each** student is responsible for the content of **all** assignments.
- The **formats** of exams may be varied. However, the **purpose** of each exam is the same. That is, to test whether you understand the materials or not. Furthermore, I believe that learning the material is more important than obtaining the good grade.
- Homework turned in late will **not** be graded.
- Makeup exams will **not** be given. (Exception to the rule: only if instructor agrees you have just cause to make up the exam).
- Incomplete grades will **only** be given when an emergency situation exists and verified by the instructor.
- Please **do not** come late. The lecture begins at 9:00 am (**not 9:01 am**).
- Please **do not** leave the classroom during my lecture except for urgent issues such as sickness. Please also let me know beforehand if you plan to leave the classroom during my lecture.
- Please **do not** talk, sleep, or eat in class. If you have to drink, please do quietly so you don't disturb your classmates.
- Please **do not** turn on any electronic devices, including your laptop, cell phone, iPhone, iPad, and iPod.
- If you plan to miss more than **one** lecture, then I strongly suggest that you take this class later. In case you miss a lecture, you have to work **very** hard to pick up the missing materials.
- **I do not tolerate cheating. In addition, please visit the website “<http://sja.ucdavis.edu/files/cac.pdf>” to study the “the Code of Academic Conduct” and visit participate.ucdavis.edu to understand participation requirements.**

Chapter Contents

14 Analysis of Variance

- One-way analysis of variance
- Randomized block design
- Two factorial design

19 Nonparametric Statistics

- Wilcoxon rank test
- Kruskall-Wallis test for the completely randomized design
- Friedman test for randomized block design

15 Chi-Squared Tests

- Chi-squared goodness of fit test
- Chi-squared test of a contingency Table

16 Simple Linear Regression and Correlation

- Model fitting
- Parameter estimates and interpretations
- Statistical inference and forecasting

17 & 18 Multiple Regression Model

- Regression Diagnostics (Check the appropriateness of model assumptions)
- Transformations and regression model with autocorrelated errors
- Polynomial regression and nonlinear regression models
- Regression models with dummy variables
- Partial F-test to assess the adequacy of model fitting
- variable selections

20 Time Series Analysis and Forecasting

- Trend analysis
- Measuring cyclical and seasonal effects
- Times series forecasting with smoothing techniques

21 Statistical Process Control