

MGP 203B—Forecasting & Managerial Research Methods (II)

PREREQUISITE: MGP 203A

LECTURES: Thursday: 6:00 p.m. -8:50 p.m.
2205 Sac Ed Ctr

INSTRUCTOR: Chih-Ling Tsai
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OFFICE HOURS: By appointments

TEXT: Statistics for Management and Economics, Eleventh Edition,
by Gerald Keller.

**APPROXIMATE
MATERIAL TO BE
COVERED:**

GK: Chapters 14-21 (see the last page for details)

**NOTES and
HANDOUTS:**

Please purchase them from the UCD bookstore.
You can also purchase them online.

**COMPUTER
PACKAGE**

MINITAB (version 19) is used for the class.
You can rent it from the website:
<http://www.onthehub.com/minitab/>

You may use Excel or R to do homework, but some problems
are needed to be done by Minitab.

**IMPORTANT
DATES:**

Thursday, 1/9/20	First day of class
Thursday, 2/13/20	Midterm (close book)
Thursday, 3/19/20	Final Exam (open book)

GRADING:

Midterm	30%
Final Exam	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.
3. Build a solid foundation for business analytics, and prepare you for other analytics-related courses.

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:

- 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 MGP 203A was not **satisfactory**, please see me within the **first** week.
- Please review lecture notes and the textbook **immediately** after **each** lecture. Homework should also be done as soon as possible.
- I will stay in the classroom **from 8:50 pm to 9:00 pm**. I suggest that you stay in the classroom after the class and understand your assignments immediately. Thus, I can answer your questions face-to-face.
- If you have any problems in understanding the material please **DO NOT HESITATE TO ASK ME FOR HELP**. 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** you name and the **class number** at the top of the right hand corner on the first page of you homework assignment, also, please **staple** your homework.

Notes:

- Assignments may be done in groups of no more than **three** students; only **one** copy of a group assignment needs to 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 6:00 pm (**not 6:01 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 or sleep in the class. If you want to drink or eat, 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