



Course Syllabus

Course Information

Course Number: OPRE 6301.001/SYSM 6303.001
Course Title: Quantitative Introduction to Risk and Uncertainty in Business
Term: Fall 2016

Professor Contact Information

Professor: Ching-Chung Kuo
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Office Hours: T, R, F 1:00 p.m. - 3:00 p.m.

About the Instructor

Ching-Chung Kuo is a Clinical Professor and the Director of the Undergraduate Supply Chain Management Program in the Operations Management Area of the Jindal School of Management at the University of Texas at Dallas. He received his Ph.D. in Industrial Engineering and Management Sciences from Northwestern University.

TA Contact Information

Teaching Assistant: Rajnath Geddi Rabindranath
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Office Hours: R 11:00 a.m. - 1:00 p.m.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-requisite: MATH 5304 Applied Mathematical Analysis for Non-Majors or equivalent

Course Description

“Quantitative Introduction to Risk and Uncertainty in Business (3 semester credit hours) Introduction to statistical and probabilistic methods and theory applicable to situations faced by managers. Topics include: data presentation and summarization, regression analysis, fundamental probability theory and random variables, introductory decision analysis, estimation, confidence intervals, hypothesis testing, and One Way ANOVA. (Some sections of this class may require a laptop computer). (3-0) S”

The aim of this course is for the students to develop skills in problem formulation, identification of statistical techniques, computer implementation in Excel, and interpretation of results. Topics to be covered include graphical and numerical descriptive techniques, data collection and sampling, probability theory, random variables, probability distributions, sampling distributions, point and interval estimations, hypothesis testing, statistical inferences, analysis of variance, and regression analyses.



Student Learning Objectives/Outcomes

Students taking this class are expected to develop skills in problem formulation, identification of appropriate statistical techniques, problem solving by hand or using Microsoft Excel, and interpretation of results. Upon successful completion of this course, students should be able to:

1. Organize and summarize raw data;
2. Build and evaluate a regression model from raw data;
3. Apply the basic rules of probability theory;
4. Apply the concept of a random variable to solve business problems;
5. Apply the normal, Poisson, and binomial distributions to solve business problems;
6. Identify significant changes in averages and proportions;
7. Determine if two populations have the same mean or the same proportion; and
8. Determine if several populations have the same mean.

Required Textbooks and Materials

Textbook:

Keller, G. (2014). *Statistics for management and economics* (10th ed.). Stamford, CT: Cengage Learning. (ISBN-10: 1-285-45212-7; ISBN-13: 978-1-285-45212-8)

The textbook listed above is required for this course. The student is fully responsible for the possible consequences caused by using other editions of it as their contents might be different from those in the latest edition.

Software:

The main computer software to be used in this course includes Data Analysis and Data Analysis Plus 9.0. The former is an Excel add-in and the latter can be downloaded from the textbook publisher's website. Both of them will be run on a Windows-based laptop with Microsoft Excel 2007 or higher (no trial versions).

Assignments and Academic Calendar

08/26/16	Syllabus Review
	Chapter 1: What is Statistics?
	Chapter 2: Graphical Descriptive Techniques I
09/02/16	Chapter 3: Graphical Descriptive Techniques II
	Chapter 4: Numerical Descriptive Techniques
09/09/16	Chapter 4: Numerical Descriptive Techniques



	Chapter 5: Data Collection and Sampling
09/16/16	Chapter 6: Probability
	Chapter 7: Random Variables and Discrete Probability Distributions
09/23/16	Examination I
09/30/16	Chapter 7: Random Variables and Discrete Probability Distributions
	Chapter 8: Continuous Probability Distributions
10/07/16	Chapter 8: Continuous Probability Distributions
	Chapter 9: Sampling Distributions
10/14/16	Chapter 10: Introduction to Estimation
	Chapter 11: Introduction to Hypothesis Testing
10/21/16	Chapter 8: Continuous Probability Distributions (Section 8-4a Student t Distribution)
	Chapter 12: Inference about a Population
10/28/16	Examination II
11/04/16	Chapter 8: Continuous Probability Distributions (Section 8-4b F Distribution)
	Chapter 13: Inference about Comparing Two Populations
11/11/16	Chapter 13: Inference about Comparing Two Populations
	Chapter 14: Analysis of Variance
11/18/16	Chapter 14: Analysis of Variance
	Chapter 16: Simple Linear Regression and Correlation
11/25/16	Thanksgiving Holidays (no class)
12/02/16	Chapter 16: Simple Linear Regression and Correlation
	Chapter 17: Multiple Regression
12/09/16	Examination III



Grading Policy

Grading Criteria:

Homework Assignments	20%
Examination I	25%
Examination II	25%
Examination III	30%

Grading Scale:

90 or above	A
87 - 89	B ⁺
80 - 86	B
77 - 79	C ⁺
70 - 76	C
Below 70	F

Course and Instructor Policies

Homework Assignments:

Five to six students will form a team in the first class meeting and they are collectively responsible for 11 homework assignments during the semester. However, only the best 10 scores will count towards the course grade. Each team has to submit a hard copy of the homework solutions at the beginning of the class on the due date of each assignment. No late submissions will be accepted.

All homework solutions must be typewritten in a regular font of your choice of size 10 - 12 points on 8 ½ x 11 white paper. Computer outputs should be properly pasted at the appropriate places. All charts plotted manually should be prepared with a ruler on graph paper and they should be attached at the end. Moreover, the course number, the course title, the homework number, the team number, and the names of the team members must be clearly indicated on the cover page. Finally, no collaborations with other teams are allowed. Points will be deducted for any deviations from these guidelines.

A student's grade on homework will be subject to peer evaluations at the end of the semester. Suppose, for example, that your team's average score on the assignments submitted is 95% and you receive an average evaluation of 96% from your teammates and yourself. Then your overall score for the homework assignments will be $95\% \times 96\% = 91.2\%$. Please refer to Page 7 for a sample completed peer evaluation form.

In case a member does not perform to the team's expectation in homework assignments by constantly missing group meetings, failing to provide requested information in a timely fashion, contributing work that is poorly done, or exhibiting other unprofessional behaviors, the other members may decide to drop him/her from the group. However, in the interest of fairness, the five-step procedure outlined below must be closely followed:

- (1) There needs to be a unanimous agreement among all other team members that the student's performance is unsatisfactory.
- (2) The concern must be conveyed to the person in writing and discussed with him/her in person. The written notice must be signed and dated by the rest of the group.
- (3) A copy of the above-mentioned notice has to be submitted to the instructor at the same time.
- (4) The student has two weeks of class time to improve his/her performance.



- (5) If no unsatisfactory improvement is made over the two-week period, then a final written notice of dropping the person as a member of the team will be signed and dated by the other members and given to him/her. In the meanwhile, a copy of the document must be forwarded to the instructor.

If a student is dropped from a team and not accepted by another, then he/she must complete the remaining assignments on an individual basis or loses the homework points. Notice that no team members can be dropped after Examination I.

Examinations:

There will be three noncumulative, closed-book, and closed-notes examinations given in class during the semester. The types of questions to be asked in the test include, but are not limited to, multiple-choice, fill-in-the-blank, short-answer, analysis of computer input/output, and computational.

No make-up examination will be given unless prior arrangements have been made with the instructor or there is documented evidence of an extreme circumstance causing the delay or absence (e.g., verifiable medical or family emergencies) and it is provided to the instructor at the earliest possible time. Only pens, pencils, erasers, rulers, and calculators are allowed during the examination. No sharing of those items between students is permitted, nor is the use of any cell phone or laptop.

Course-related Materials:

Lecture notes, readings, homework assignments, as well as other relevant information will be posted online for download to help students learn throughout the semester. However, the PowerPoint slides used by the instructor in class will not be made available.

Course Website:

It is the student's responsibility to log into the eLearning course website on a regular basis to keep abreast of the latest developments in the class.

Class Attendance:

Attending class regularly is extremely important and strongly recommended. Whether present or not, each student will be held responsible for any material discussed or announcement made in class. The information will not be repeated by the instructor or the TA during the office hours.

Acceptable Student Behaviors:

Student exhibiting behaviors that interfere with the instructor's ability to conduct the class or other students' opportunity to learn are unacceptable and will not be tolerated. They will be directed to leave the classroom and the instructor may refer them to the Dean of Students Office for consideration of violation of the student code of conduct. Texting or using a cell phone is prohibited during the lecture, so are taking unauthorized pictures and video/audio recording of the lectures without the explicit permission of the instructor.

Extra Credit:

No additional work for extra credit is possible in this class.



Comet Creed

As a Comet, I pledge honesty, integrity, and service in all that I do

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the syllabus: <http://go.utdallas.edu/syllabus-policies>.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the professor.



Appendix 1

OPRE 6301.001 Quantitative Introduction to Risk and Uncertainty in Business Peer Evaluation Form for Group Homework

Instructions: The information submitted is final and cannot be changed. So please rate each of your fellow team members with respect to the criteria listed in the table below. Be honest, reasonable, and fair.

Group number: 20

	Amy Becker	Chris Drake	Eileen Flay	Gene Hanks	Yourself
Meeting attendance (15%)	13%	15%	15%	14%	15%
Punctuality of work (15%)	13%	15%	14%	15%	13%
Fair share of work (30%)	28%	30%	26%	27%	29%
Quality of work (40%)	34%	40%	40%	35%	36%
Total (100%)	88%	100%	95%	91%	93%

Name: _____

Signature: _____

Date: _____

Comments: _____

