



**OPRE 6301.5U1/SYSM 6303.5U1 (cross-listed course) –
Quantitative Introduction to Risk and Uncertainty in Business**

Term: Summer 2016

Professor: Monica E. Brussolo, Ph.D.

Time: Wednesday: 6:00 - 10:00 PM

Location JSOM 2.717

CONTACT INFORMATION:

Office Phone 972-883-4411

Office Location JSOM 3.231

Email Address monica.brussolo@utdallas.edu

Office Hours By appointment.

Other Information Please ensure e-mail messages include “OPRE 6301.001” or “SYSM 6303.001” in the subject line. Email is the most effective way to reach me.

TA Information Mehdi Hosseinabadi Farahani- PhD student Operations Management
mxh143930@utdallas.edu

GENERAL COURSE INFORMATION

Pre-requisite MATH 5304 or equivalent.

Computer requirement:

You do not need to have a laptop. There will be Excel assignments that you can work on any Windows based computer including at JSOM lab. Macs do not have the scripting ability necessary to run Data Analysis Plus except if you have Excel 2016. If you are using an older version of Excel for Mac, it is necessary to install a Windows Virtual Machine, such as Parallel Desktop, or VMWare Fusion 4 which will then allow the use of Windows within the Mac Operating System. You must have the Windows version of Excel or the Parallel Desktop is of no use.

Course description

This course is an 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 ANOVA. The aim of the course is for the students to develop skills on problem formulation, identification of statistical techniques, computer implementation in Excel, and interpretation of results.

Learning outcomes and expectations

Active and informed participation is expected from every student. Class sessions will consist primarily of lecture, with some discussions and in-class exercises as appropriate to the topic being covered. Textbook readings are a major source of learning in this course. Therefore, students are expected to read the appropriate textbook chapters in preparation for exams. Students should expect to spend an average of 9 to 12 hours per week on class preparation and studying activities outside of class meetings.

Learning outcomes – upon completion of this course, students will be able to accomplish the following:

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
8. Determine if several populations have the same mean

Required text

Statistics for Management and Economics (10th Edition) by Keller. ISBN: 978-1-285-42545-0

Required software and downloads

1. Microsoft Excel
2. Data Analysis Add-In – instructions for installation is available on eLearning.
3. Data Analysis Plus 9.0 – see page 10 of your textbook for download instructions.

COURSE GRADING INFORMATION

Exams/Homeworks

Three (3) two-hour exams in the testing center will be given. Each exam will contribute 30% toward your final course grade (90% total).

Two (2) Excel homeworks, posted a week in advance and due by midnight on eLearning on the due date. *They won't be accepted by email.* They contribute 10% of your final grade. No late deliveries will be accepted. You are allowed to work with your classmates in these homework but it is expected that each student will write and prepare his/her own report. Evidence of copying or cheating will be penalized as defined in the Academic Dishonesty section of this syllabus.

Solutions to the exams will be discussed in class. After each exam, students will have a week during which they may discuss the answers to their exam with the Professor or the Teaching Assistant. After the designated review period has ended, there will be no further discussions of that exam.

Make-up exams may be offered under certain circumstances. Please consult with the instructor. Students who do not show up for an exam, and for whom alternate arrangements for a make-up exam have not been discussed with the Instructor prior to the date of the exam, will receive a score of zero for that exam. No exceptions.

Additional information

Extra credit will **NOT** be offered for any graded portions of this course.

Summary of course grading

Graded Component	% Contribution
Exam #1	30%
Exam #2	30%
Exam #3	30%
Excel Homeworks	6%
Attendance and participation	4%
Course Total: 100%	

Grading criteria

Letter Grade	A	B+	B	C+	C	F
Percentage	90%	85%	80%	75%	70%	Below 70%

Important Note about Grades: If any adjustments to final grades are necessary, they will be determined based on the performance of the class. I reserve the right to assign A- and B- under necessary circumstances (extreme borderline cases between letters). Unless there is an error in grading the final exam, **letter grades are FINAL.**

CLASSROOM PARTICIPATION

PowerPoint slides are utilized by the Instructor to lead and enhance the in-class lecture. The slides will be made available for download before class but any annotations made in class won't be posted. To encourage critical thinking, students are expected to attend class and take notes. Being proactive in the classroom by asking questions is encouraged. Students are expected to read the appropriate textbook sections prior to coming to class.

TENTATIVE COURSE SCHEDULE

The following is a **tentative schedule** which will be followed as closely as possible. However, should changes become necessary, they will be announced in class. It is your responsibility to keep track of announcements regarding changes to this schedule.

WEEK #	DATE	LECTURE TOPICS/EXAMS
Week 1	May 25	Ch 1: What is Statistics? Ch 2: Graphical Descriptive Techniques I Ch 3: Graphical Descriptive Techniques II
Week 2	June 1	Ch 3: Graphical Descriptive Techniques II (continuation if needed) Ch 4: Numerical Descriptive Techniques Ch 5: Data Collection and Sampling
Week 3	June 8	Ch 6: Probability Ch 7: Random Variables and Discrete Probability Distributions
Week 4	June 15	EXAM #1 (Chapters 1-6) @ Testing Center at McDermott Library (no class this day).
Week 5	June 22	Ch 8: Continuous Probability Distributions Ch 9: Sampling Distributions
Week 6	June 29	Ch 10: Introduction to Estimation Ch 11: Introduction to Hypothesis Testing
Week 7	July 6	Ch 8.4a: Student t Distribution Ch 12: Inference about One Population Ch 8.4b: F Distribution Ch 13: Inference about Two Populations <i>Excel homework 1 due on eLearning on July 9th at midnight</i>
Week 8	July 13	EXAM #2 (Chapters 7-11) @ Testing Center at McDermott Library (no class this day).
Week 9	July 20	Ch 13: Inference about Two Populations (continuation if needed) Ch 14: Analysis of Variance (ANOVA)
Week 10	July 27	Ch 16: Simple Linear Regression Ch 17: Multiple Linear Regression <i>Excel homework 2 due on eLearning on July 30th at midnight</i>
Week 11	August 3	EXAM #3 (Chaps 12-14 and 16-17) @ Testing Center at McDermott Library (no class this day).

** On Exam day: A cheat-card 5x8 inches is allowed (written both-side) which will be turned in with your exam. Bring a calculator that has at least these minimum capabilities: basic 4-functions, square root, exponent and it is able to display at minimum 4 decimal places. Probability distribution tables will be available with the exam on a PDF file.*

COURSE CONTENT AND SUGGESTED TEXTBOOK PROBLEMS

The following is a list of the chapter sections from the textbook this course will cover, along with a list of suggested supplemental problems. These problems are for your benefit and not to be turned in for grading. Should you need assistance in solving the problems, visit your TA or the Professor with written/laptop evidence that you have attempted to solve the problems.

CHAPTER AND SECTIONS	SUGGESTED PROBLEMS
<u>Chapter 1</u> All Sections	1.2 – 1.8 (even numbered problems)
<u>Chapter 2</u> All Sections	2.14 – 2.34 (even numbered problems) 2.40 – 2.50 (even numbered problems)
<u>Chapter 3</u> All Sections	3.6 – 3.20 (even numbered problems) 3.32, 3.34 3.48 – 3.58 (even numbered problems)
<u>Chapter 4</u> Section 4.1 – 4.4, 4.7, 4.8, Appendix 4	4.2 – 4.16 (even numbered problems) 4.32 – 4.36 (even numbered problems) 4.42 – 4.54 (even numbered problems)
<u>Chapter 5</u> All Sections	5.2, 5.3, 5.7, 5.12, 5.17 – 5.19
<u>Chapter 6</u> Sections 6.1 – 6.3, 6.5	6.6, 6.8, 6.12, 6.16, 6.20 6.28 – 6.40 (even numbered problems) 6.48, 6.56 6.62 – 6.68 (even numbered problems)
<u>Chapter 7</u> Sections 7.1, 7.4, 7.5	7.2, 7.8 7.10 – 7.20 (even numbered problems) 7.32, 7.84 7.92 – 7.100 (even numbered problems) 7.110 – 7.118 (even numbered problems)
<u>Chapter 8</u> Sections 8.1, 8.2, 8.4	8.16 – 8.56 (even numbered problems) 8.84 – 8.88 (even numbered problems) 8.96 – 8.100 (even numbered problems)
<u>Chapter 9</u> Sections 9.1, 9.2, 9.4	9.2 – 9.24 (even numbered problems) 9.30 – 9.42 (even numbered problems) 9.52, 9.54
<u>Chapter 10</u> All Sections	10.2, 10.12 10.22 – 10.32 (even numbered problems) 10.52, 10.54
<u>Chapter 11</u> All Sections	11.8 – 11.12 (even numbered problems) 11.14 – 11.46 (even numbered problems)
<u>Chapter 12</u> Sections 12.1, 12.3	12.4, 12.8 12.24 – 12.34 (even numbered problems) 12.70, 12.74, 12.94, 12.96
<u>Chapter 13</u> Sections 13.1, 13.4, 13.5, Appendix 13	13.12 – 13.20 (even numbered problems) 13.32 – 13.36 (even numbered problems) 12.78, 13.80, 13.90, 13.92
<u>Chapter 14</u> Sections 14.1, 14.2, Appendix 14	14.4 – 14.14 (even numbered problems) 14.38, 14.42
<u>Chapter 16</u> All Sections, Appendix 16 (excluding Ch 15)	16.2, 16.6, 16.8, 16.10, 16.32, 16.34b-c, 16.38, 16.40, 16.56, 16.62, 16.90, 16.100, 16.102
<u>Chapter 17</u> Sections 17.1 – 17.3 Appendix 17 (excluding Ch 15)	17.8, 17.10, 17.18, 17.24, 17.28

MOBILE PHONES AND COMPUTERS

No use of mobile phones for talking or texting is allowed in the classroom. If you must make a call during class or breaks, please step outside of the classroom.

Taking unauthorized pictures or video within the classroom, with your mobile phone or a camera, is an infringement of privacy rights and is prohibited.

Computers may be brought to class and be used for the purpose of following along during computer software demonstration portions of class lecture. Surfing the internet during lecture is a distraction to other students and the Instructor and interferes with learning. These distractions will be regarded as an infringement upon the rights of others to learn within the classroom, and students are subject to referral to the appropriate Dean.

Special Assistance

For help you succeed in the class, the following resources are available:

Your instructor, the teaching assistant assigned to this class, JSOM Stats Lab (JSOM 2.709) and the Student Counseling Center (SSB 4.600) among other resources.

Accessibility Accommodations

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the Office of Student AccessAbility for a confidential discussion. OSA is located in the Student Services Building, suite 3.200. They can be reached by phone at (972) 883-2098, or by email at studentaccess@utdallas.edu.

Academic Integrity

The faculty and administration of the School of Management expect from our students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work. We want to establish a reputation for the honorable behavior of our graduates, which extends throughout their careers. Both your individual reputation and the school's reputation matter to your success.

The Judicial Affairs website lists examples of academic dishonesty. Dishonesty includes, but is not limited to cheating, plagiarism, collusion, facilitating academic dishonesty, fabrication, failure to contribute to a collaborative project and sabotage. Some of the ways students may engage in academic dishonesty are:

- Coughing and/or using visual or auditory signals in a test;
- Concealing notes on hands, caps, shoes, in pockets or the back of beverage bottle labels;
- Writing in blue books prior to an examination;
- Writing information on blackboards, desks, or keeping notes on the floor;
- Obtaining copies of an exam in advance;
- Passing information from an earlier class to a later class;
- Leaving information in the bathroom;
- Exchanging exams so that neighbors have identical test forms;
- Having a substitute take a test and providing falsified identification for the substitute;
- Changing a graded paper and requesting that it be regraded;
- Failing to turn in a test or assignment and later suggesting the faculty member lost the item;
- Stealing another student's graded test and affixing one's own name on it;
- Recording two answers, one on the test form, one on the answer sheet;
- Marking an answer sheet to enable another to see the answer;

- Encircling two adjacent answers and claiming to have had the correct answer;
- Stealing an exam for someone in another section or for placement in a test file;
- Using an electronic device to store test information, or to send or receive answers for a test;
- Consulting assignment solutions posted on websites of previous course offerings;
- Transferring a computer file from one person's account to another;
- Transmitting posted answers for an exam to a student in a testing area via electronic device;
- Downloading text from the Internet or other sources without proper attribution;
- Citing to false references or findings in research or other academic exercises;
- Submitting a substantial portion of the same academic work more than once without written authorization from the instructor.

<http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-Basicexamples.html>

Plagiarism

Plagiarism on written assignments, especially from the web, from portions of papers for other classes, and from any other source is unacceptable. On written assignments, this course will use the resources of turnitin.com, which searches the web for plagiarized content and is over 90% effective.

Conduct During Course Exams

During tests and quizzes, students in this section are not allowed to have with them any scratch paper, textbooks, invisible ink pens, or electronic devices, including iPads, iPhones, iPods, MP3 players, earphones, radios, smart phones, cameras, multi-function timepieces, or computers. Students should face forward at all times, keep their test papers directly in front of them, and remove any clothing which might conceal eye movements, reflect images of another's work, or hide course material for copying. Exam proctors will monitor any communication or signaling between students, such as talking, whispering, or making sounds, or by using your hands, feet, other body movements, the test paper itself or your writing implement.

Academic Dishonesty

Students in this course suspected of academic dishonesty are subject to disciplinary proceedings, and if found responsible, the following minimum sanctions will be applied:

- **Homework – Zero for the Assignment**
- **Case Write-ups – Zero for the Assignment**
- **Quizzes – Zero for the Quiz**
- **Presentations – Zero for the Assignment**
- **Group Work – Zero for the Assignment for all group members**
- **Exams – F for the course**

These sanctions will be administered only after a student has been found officially responsible for academic dishonesty, either through waiving their right for a disciplinary hearing, or being declared responsible after a hearing administered by Judicial Affairs and the Dean of Student's Office.

In the event that the student receives a failing grade for the course for academic dishonesty, the student is not allowed to withdraw as a way of preventing the grade from being entered on their record. Where a student receives an F in a course and chooses to take the course over to improve their grade, the original grade of F remains on their transcript, but does not count towards calculation of their GPA.

The School of Management also reserves the right to review a student's disciplinary record, on file with the Dean of Students, as one of the criteria for determining a student's eligibility for a scholarship.

Judicial Affairs Procedures

Under authority delegated by the Dean of Students, a faculty member who has reason to suspect that a student has engaged in academic dishonesty may conduct a conference with the student in compliance with the following procedures:

- (i) the student will be informed that he/she is believed to have committed an act or acts of academic dishonesty in violation of University rules;

- (ii) the student will be presented with any information in the knowledge or possession of the instructor which tends to support the allegation(s) of academic dishonesty;
- (iii) the student will be given an opportunity to present information on his/her behalf;
- (iv) after meeting with the student, the faculty member may choose not to refer the allegation if he/she determines that the allegations are not supported by the evidence; or
- (v) after meeting with the student, the faculty member may refer the allegations to the dean of students along with a referral form and all supporting documentation of the alleged violation. Under separate cover, the faculty member should forward the appropriate grade to be assessed if a student is found to be responsible for academic dishonesty;
- (vi) the faculty member may consult with the dean of students in determining the recommended grade;
- (vii) the faculty member must not impose any independent sanctions upon the student in lieu of a referral to Judicial Affairs;
- (viii) the faculty member may not impose a sanction of suspension or expulsion, but may make this recommendation in the referral documentation

If the faculty member chooses not to meet with the student and instead forwards the appropriate documentation directly to the dean of students, they should attempt to inform the student of the allegation and notify the student that the information has been forwarded to the Office of Dean of Students for investigation.

The student, pending a hearing, remains responsible for all academic exercises and syllabus requirements. The student may remain in class if the student's presence in the class does not interfere with the professor's ability to teach the class or the ability of other class members to learn. (See Section 49.07, page V-49-4 for information regarding the removal of a student from class).

Upon receipt of the referral form, class syllabus, and the supporting material/documentation from the faculty member, the dean shall proceed under the guidelines in the Handbook of Operating Procedures, Chapter 49, Subchapter C. If the respondent disputes the facts upon which the allegations are based, a fair and impartial disciplinary committee comprised of UTD faculty and students, shall hold a hearing and determine the responsibility of the student. If they find the student in violation of the code of conduct, the dean will then affirm the minimum sanction as provided in the syllabus, and share this information with the student. The dean will review the student's prior disciplinary record and assess additional sanctions where appropriate to the circumstances. The dean will inform the student and the faculty member of their decision.

UT Dallas Syllabus Policies and Procedures

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

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