



Course **OPRE 3360.003**
Managerial Methods in Decision Making Under Uncertainty

Instructor Ilhan **Emre** Ertan

Term Fall 2016

Meetings Mondays & Wednesday 11:30 AM - 12:45 PM at JSOM 12.214

INSTRUCTOR'S CONTACT INFORMATION

Office location	JSOM 3.423
Email address	emre.ertan@utdallas.edu
Instructor Office hours	Mondays 10:15am - 11:15pm or By appointment.
TAs and Office Hours	Amir Farzam and Golnaz Sahafipourfard Monday-Friday 10am – 6pm at JSOM 2.414
Other information	eLearning is recommended for ALL communications during the semester. It will be used to post announcements, assignments and grades.

GENERAL COURSE INFORMATION

Pre-requisites, Co-requisites, & other restrictions	OPRE 3360 and STAT 3360 cannot both be used to fulfill degree requirements. Prerequisite: <u>MATH 1326</u>, <u>MATH 2414</u> or <u>MATH 2419</u>. The topics discussed in this course are inherently mathematical. Although the level of math in this course is not advanced, students are encouraged to explore supplementary resources early on the semester.
Course Description	Introduces the concept of probability and statistics to managerial decision making. Concepts will be developed in lecture and exercise. Topics include: summarizing and presenting data, probability theory, sampling, estimation, confidence intervals, hypothesis testing, regression, and ANOVA. Emphasis will be given to modeling and solving business problems in Finance, Marketing, Accounting, and Operations Management.
Learning Outcomes	Students are required to take the initiative to learn, understand and apply statistics to real world business data. At the end of this course you should: • Be acquainted with the concept in sample and population • Be able to calculate and interpret statistics in context • Be able to use statistics to describe samples and test hypothesis to make inferences about populations.
Required Texts & Materials	Anderson, D., Sweeney, D. and Williams, T. (2014) Modern Business Statistics with Microsoft Office Excel, 5th ed. with Cengage Aplia online learning resource. Choose one of the following two options: • Option A - Aplia, ebook and 3-ring loose leaf textbook – ISBN 9781305029125 • Option B - Aplia and ebook – ISBN 9781305255128 <u>APLIA COURSE KEY: 3LXG-VVQR-ZGSW</u> Registration instructions are included with this syllabus. Purchasing Options: • Option A – UTD Bookstore • Option B – Follow the link through eLearning

Required Devices:

- An Apple or PC laptop or any computer access (available at computer labs in JSOM). You will be required to have and use this device during course preparation and for working on the Aplia assignments as well as assigned projects.
- A calculator is required for this course. Any calculator of your choice is authorized as long as it has the following minimum capabilities: basic 4-functions, square root, exponent, and display 4 or more decimal places. You are required to bring this calculator to each exam and know how to use it. And **SMART PHONES** will **NOT** be allowed for any use.

Grading Policy:

	<i>Option1</i>	<i>Option2</i>
<i>Class Participation</i>	5%	5%
<i>Project</i>	NA	20%
<i>Homework</i>	20%	NA
<i>Exam 1</i>	25%	25%
<i>Exam 2</i>	25%	25%
<i>Exam 3</i>	25%	25%
	100%	100%
<i>(BONUS) Hands on cases and Presentations</i>	6%	6%

Class Participation:

- You are expected to attend every class and to actively participate in the discussion and activities. Looking at previous experiences with this and other classes, tardiness and absence are the main contributing factors to poor and failing grades. Also, your participation grade will come from your in class discussions and your attitude to towards the class activities. You can be shy person, yet we are in a management school and you need to learn how to initiate a business discussion. And I am always here to help and guide you!!
- You are expected to read the textbook chapters and other required materials **PRIOR TO** the corresponding class lecture. You are responsible for all material discussed and assigned and to follow up all course schedule changes announced during class.

There are two different paths to follow in this class:

Option 1 -Homework Assignments:

There will be 12 assignments for each chapter we finish! So keep track of our progress in the class, there won't be any late homework submissions. The lowest graded 2 homeworks will be dropped in the end of the semester. Assignments will be released on eLearning at least one week prior to the due date. Each assignment has a **certain DEADLINE** and need to be completed on Aplia. After the deadline you can **NOT change your answers**, by the design of Aplia. So **NO** make-up assignments will be offered.

Option 2 – Final Project

There is a final project that you need to follow up with your instructor through out to semester, and fulfill pre-specified deadline requirements (Check the timetable below). Failing to fulfill the requirements will make you end up losing points from your overall Project grade. The details of the project will be posted separately. If you are decided to choose this option, you **CANNOT**

change your mind in the middle of the semester, based on the strict deadlines of the homework assignments.

Exams:

All 3 exams will be in-class, closed-book/closed note. A **hand-written, single-sided** formula sheet **not larger than 8.5"x11"** (letter size) will be allowed to use during **EACH EXAM**. You are allowed to include any information on the formula sheet you feel will be of assistance in your completion of the exam. The formula sheet must have your name written on it and be turned in with your exam. **NO MAKE-UP EXAM WILL BE OFFERED.**

Optional Group Assignments:

There will be student groups of size 5-7, according to your comfort level. You need to be in contact with your group members all the time, so pick your group members carefully. Groups will be assigned at the beginning of the semester. Each group can contribute 2 activities:

- There will be 2 case-studies related to several chapters and concepts. They will be posted on eLearning during the semester and they will be due on the day of the exam no.3. You need to pick a case and work with your group and submit as a single report from your group. Details and the format of the reports submission will be provided with each case.
- There will be tutorial sessions, in which students will come to board and solve the tutorial questions.

E-Learning:

Your course e-Learning site will be used as the main communication portal throughout the semester. E-Learning email is also the appropriate avenue for sending email to your professor. There will be a class handout posted for each lecture summarizing the main points of the topics covered as well as link to Aplia. All grades will be posted as soon as grading has been completed. A copy of the course syllabus will be available at all times, and you will be notified of any changes made during the semester.

Guidelines for Letter Grades: The grade will be based on the following scale.

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Cutoff Percentage	95	90	87	83	80	77	73	70	67	63	60	<60

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Managerial Methods in Decision Making Under Uncertainty

Fall 2016, Mondays & Wednesdays: 11:30 a.m. – 12:45 p.m., Room: JSOM 12.214

Assignments & Academic Calendar: Tentative Schedule of the Course

- The following is a **tentative schedule** which will be followed as closely as possible. However, if any changes become necessary, they will be announced in class. It is your responsibility to keep track of announcements regarding changes to this schedule.
- Due dates for readings and assignments can be found in the Aplia online learning resource.

Week	Date	Topic	Reading	Due Dates
1	22-Aug	First day Introduction, Syllabus		
	24-Aug	Data and Statistics	Ch1	
2	29-Aug	Descriptive Statistics: Tabular and Graphics	Ch2	
	31-Aug	Descriptive Statistics: Tabular and Graphics	Ch2	HW 1
3	5-Sep	Labor Day, No Classes		
	7-Sep	Displays and Numerical Measure	Ch3	HW 2 & P1
4	12-Sep	Displays and Numerical Measure	Ch3	
	14-Sep	Introduction to Probability	Ch4	HW 3 & P2
5	19-Sep	Exam 1: Chapters 1, 2, 3		
	21-Sep	Introduction to Probability	Ch4	
6	26-Sep	Discrete Probability Distributions	Ch5	HW 4
	28-Sep	Continuous Probability Distributions	Ch6	
7	3-Oct	Discrete and Cont's Probability Exercises	Ch5&6	
	5-Oct	Sampling and Sampling Distributions	Ch7	HW 5 & 6
8	10-Oct	Sampling and Sampling Distributions	Ch7	
	12-Oct	Interval Estimation	Ch8	HW 7
9	17-Oct	Interval Estimation	Ch8	P3
	19-Oct	Exam 2: Chapters 4, 5, 6, 7, 8		HW 8
10	24-Oct	Hypothesis Testing	Ch9	
	26-Oct	Hypothesis Testing	Ch9	
11	31-Oct	Simple Linear Regression	Ch14	HW 9
	2-Nov	Simple Linear Regression	Ch14	
12	7-Nov	Multiple Linear Regression	Ch15	HW 10
	9-Nov	Time Series Regression	Ch17	P4
13	14-Nov	Exam Preparation, No Class		HW 11
	16-Nov	Exam 3: Chapters 9, 14, 15, 17		HW 12
14	21-Nov	Fall Break, No Class		
	23-Nov			

15	28-Nov	Experimental Design and Analysis of Variance	Ch13	
	30-Nov	Experimental Design and Analysis of Variance	Ch13	
16	5-Dec	Individual Project Presentations & Case Review		P5
	7-Dec	Case Discussions and Final Submissions (Cases and Projects)		Case 1 and 2 P6

The descriptions and timelines are subject to change at the discretion of the Instructor.

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**. Answers/solutions to these problems are available with each problem in the MindTap ebook reader as well as in Appendix D in the printed textbook. Should you need assistance in solving these problems, please utilize the eLearning Discussion Board to help each other, and/or visit your Professor with written/laptop evidence that you have attempted to solve the problems.

CHAPTER AND SECTIONS	SUGGESTED PROBLEMS
Ch1: Data and Statistics All Sections	1-2, 1-3, 1-10, 1-12, 1-13, 1-14c, 1-18, 1-24
Ch2: Descriptive Statistics: Tabular and Graphical Presentations Sections 2.1 – 2.2	2-2 to 2-4, 2-6 to 2-8, 2-12, 2-14 to 2-18, 2-20, 2-22, 2-48, 2-50
Ch3: Descriptive Statistics: Numerical Measures Sections 3.1 – 3.5	3-2, 3-5, 3-6, 3-8, 3-10, 3-12, 3-16, 3-18, 3-24 to 3-26, 3-28, 3-30, 3-32, 3-34, 3-36 to 3-40, 3-42, 3-44, 3-46, 3-48, 3-50 to 3-52, 3-55, 3-56, 3-58, 3-60, 3-62, 3-64, 3-66, 3-68, 3-70, 3-72, 3-74
Ch4: Introduction to Probability Sections 4.1 – 4.4	4-2, 4-4, 4-6, 4-8 to 4-10, 4-12, 4-14 to 4-18, 4-20, 4-22 to 4-24, 4-26, 4-28, 4-30, 4-32 to 4-34, 4-36, 4-38, 4-46, 4-48, 4-50, 4-52, 4-54, 4-56
Ch5: Discrete Probability Distributions Sections 5.1 – 5.6	5-1 to 5-4, 5-6 to 5-8, 5-10, 5-12, 5-14, 5-16, 5-18, 5-22, 5-24 to 5-28, 5-31, 5-32, 5-34, 5-36, 5-38, 5-40, 5-42, 5-44 to 5-46, 5-48, 5-50, 5-60, 5-62, 5-64, 5-66, 5-68, 5-70, 5-72
Ch6: Continuous Probability Distributions Sections 6.1 – 6.3	6-1, 6-2, 6-4a-d, 6-6, 6-10, 6-12 to 6-16, 6-18, 6-20, 6-22, 6-24, 6-26 to 6-30, 6-32, 6-34, 6-36, 6-38, 6-40, 6-42, 6-44, 6-46
Ch7: Sampling and Sampling Distributions Sections 7.1 – 7.5	7-1a-b, 7-7, 7-9, 7-15, 7-16, 7-18 to 7-20, 7-22, 7-24, 7-26, 7-40, 7-42, 7-44
Ch8 – Interval Estimation Sections 8.1 – 8.3	8-2, 8-4, 8-8, 8-10, 8-12 to 8-14, 8-22, 8-26, 8-28, 8-30, 8-44, 8-46, 8-50, 8-52

Ch9: Hypothesis Tests Sections 9.1 – 9.4	9-2, 9-4 to 9-6, 9-8, 9-10 to 9-12, 9-14, 9-15, 9-16, 9-18, 9-20, 9-22, 9-24, 9-26 to 9-28, 9-34, 9-46, 9-48
Ch13: Experimental Design and Analysis of Variance Sections 13.1 – 13.3	13-1, 13-2, 13-4, 13-6, 13-8, 13-10, 13-12 to 16, 13-18, 13-20, 13-34, 13-36, 13-38, 13-40, 13-42, 13-44
Ch14: Simple Linear Regression Sections 14.1 – 14.6	14-1, 14-2, 14-4, 14-6, 14-8, 14-10, 14-12, 14-14 to 14-16, 14-18, 14-20, 14-22 to 14-24, 14-26, 14-32, 14-34 to 14-36, 14-38, 14-56, 14-58, 14-60, 14-62

COURSE POLICIES

Classroom Citizenship	i. <u>Class begins on time.</u> Please maintain class decorum and be respectful towards fellow students in the class. If you have a doubt or misunderstanding regarding course work feel free to discuss it with me. ii. <u>Using your phone during class is not permitted.</u> Keep it on silent at all times and away from your desk. This includes no texting. Offenders will be asked to turn off their phones. Recurrent offenders will be asked to leave the classroom. iii. <u>Use of your computer (for class purposes) is permitted.</u> All other features and their usage (such as e-mail, internet, games, and instant messenger) are strictly prohibited and regarded as class disruptions. If such situation occurs, the first time you will be asked to turn off your computer. Recurrent offenders will be asked to leave the classroom. Given that this is a statistics class, the material discussed will need for you to take notes in a conventional way most of the time. Therefore, I encourage you to use your computer wisely. In my experience, abusing the use of computers during class time results in unsatisfactory final grades. iv. <u>These rules will be enforced.</u>
Expectation	University guidelines recommend that you study 2-3 hours per week for every credit hour in which you are enrolled. That is, University expectations suggest you spend 6-9 hours outside of class every week on homework and studying for this course.
Special Assistance	For help with test anxiety or time management, the following resources are available: your academic advisor, the Student Success Center (CN1.126), the Student Counseling Center (SSB 4.600), the New Student Programs Office (SSB 3.600), your instructor.
Student Conduct and Discipline	The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, <i>A to Z Guide</i>, which is provided to all registered students each academic year. The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391). A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or

	off campus, or whether civil or criminal penalties are also imposed for such conduct.
Academic Integrity	The faculty expects from its 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. Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings. Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.
Email Use	The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.
Withdrawal from Class	The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.
Student Grievance Procedures	Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>. In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.
Incomplete	As per university policy, incomplete grades will be granted only for work unavoidably

Grades	missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of <u>F</u>.
Disability Services	The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Student Accessibility: The University of Texas at Dallas, SSB 3.200 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY) Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance. It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.
Religious Holy Days	The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated. The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment. If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief

	executive officer or designee.
Off-Campus Instruction and Course Activities	Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm . Additional information is available from the office of the school dean.

How to access your Aplia course

Managerial Methods in Decision Making under Uncertainty

Instructor: Ilhan Emre Ertan

Start Date: 08/24/2016

Course Key: 3LXG-VVQR-ZGSW

What is Aplia?

In just 10 years, more than one billion answers have been submitted through Aplia, the premier online assignment solution. Millions of students use Aplia to better prepare for class and for their exams. Join them today!

Registration

1. Go to elearning and find your OPRE3360 course
2. In the "Course Homepage" page, click on the "Aplia online learning resources" link
3. Follow the prompts to register for your Aplia course.
4. And the course key is: 3LXG-VVQR-ZGSW

Payment

After registering for your course, you will need to pay for access using one of the options below:

Online: You can pay online using a credit or debit card, or PayPal.

Bookstore: You may be able to purchase access to Aplia at your bookstore. Check with the bookstore to find out what they offer for your course.

Free Trial: You can access Aplia until 11:59 PM on 09/05/2016 during your free trial. After the free trial ends you will be required to pay for access.

Please note: At the end of the free trial period, your course access will be suspended until your payment has been made. All your scores and course activity will be saved and will be available to you after you pay for access.

If you already registered an access code or bought Aplia online, the course key to register for this course is: **3LXG-VVQR-ZGSW**