
<p>Business Statistics - ISSCM241 T 6:45-9:15pm Fall 2019 Syllabus</p>

I. GENERAL INFORMATION

Instructor: Marshall Langer

Office hours: By appointment (best times TR before 2:15pm or after 5:00pm)

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Background: Investment banking, hedge fund - Wall Street. Statistical analysis. Wharton MBA.

II. COURSE INFORMATION

1. Course Description. The fundamentals of managerial statistics are presented. Topics may include descriptive statistics, random variables, probability distributions, estimation, hypothesis testing, regression, and correlation analysis. Statistical software is used to assist in the analysis of these problems.

This purpose of this course is to provide students with statistical tools needed by managers. The course emphasizes understanding the process associated with statistical decisions, defining and formulating problems, analyzing the data, and using the results in decision making. Students who have laptops with Excel are invited to bring them to class.

Course Objectives and Learning Outcomes

- Students will be able to demonstrate understanding of statistical thinking and data analysis techniques for decision-making under uncertainty.
- Students will be able to apply statistical techniques to data sets, and correctly interpret the results.
- Students will be able to analyze and apply computer-generated statistical output to solve problems.

III. LEARNING ACTIVITIES

1. Active student participation in seminar-style class lecture. Classes are interactive. Format is probing and direct. Instructor provides concrete, real-world examples to illustrate concepts. Format reinforces appropriate methods for asking questions, gaining relevant insights, and making appropriate recommendation.

2. In class presentation and discussion of readings (by professor and students). Textbook and other assigned readings (assigned according to the class schedule in this syllabus) present relevant topics, which are covered more depthfully in class lecture. In class discussion of readings, instructor highlights most relevant reading topics, showing by example how to present data in a stimulating way, consistent with achieving course objectives.

5. Homework/Excel. Homework (generally using Excel) serves to reinforce class concepts. Homework and in-class homework review is an integral part of the course.

IV. ASSESSMENT

1. Grades.

25%	Midterm Exam 1
25%	Midterm Exam 2
30%	Final Exam
5%	Case analysis/presentation
15%	Class participation

2. Exams. Exams will be comprised mainly of multiple choice questions with select short answer questions that test your ability to apply course concepts.

3. Homework. Homework is not graded but must be submitted on time.

5. Class Participation. You will be graded on the quality of, and demonstrated insight of, your in-class comments, including comments related to verbal case analyses. The comment should add insight, and be educational for class. Professor will inform students if requested at midterm of class participation grade at that point. Professor will provide feedback on effective participation, and cite good and bad examples in class.

6. Attendance Policy. Please note that course attendance is based on prompt class attendance, preparation and active participation in class discussions. In accordance with the JFRC mission to promote a higher level of academic rigor, all courses adhere to the following absence policy. Prompt attendance, preparation and active participation in course discussions are expected from every student.

- For all classes meeting once a week, students cannot incur more than one unexcused absence.
- For all classes meeting twice a week, students cannot incur more than two unexcused absences.
- For all classes meeting three times a week, students cannot incur more than two unexcused absences.

This course meets once a week, thus a total of 1 unexcused absence(s) will be permitted. Unexcused absences beyond these will result in a lowering of your final grade.

7. Academic Honesty. Plagiarism and other forms of academic dishonesty are unacceptable at the JFRC and will be dealt with in accordance with Loyola University Chicago’s guidelines. Please familiarize yourself with Loyola’s standards here: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml. You are responsible to comply with the LUC Student Handbook.

8. Late or Missed Assignments. Late or missed assignments will not be accepted for grading without the authorization of the instructor.

9. Accessibility Accommodations. Students registered with the Student Accessibility Center requiring academic accommodations should contact the Office of the Dean at the John Felice Rome Center, the first week of classes.

10. Course Grading Scale.

Course Grading Scale	
Grade	Total Points
A	93.0 - 100.0
A-	90.0 - 92.99
B+	87.0 - 89.99
B	83.0 - 86.99
B-	80.0 - 82.99
C+	77.0 - 79.99
C	73.0 - 76.99
C-	70.0 - 72.99
D+	67.0 - 69.99
D	60.0 - 66.99
F	Less than 60

V. REQUIRED COURSE MATERIAL

1. Required reading:

<u>Code</u>	<u>Title</u>
<i>To be obtained by student:</i>	
US	Brase, <i>Understanding Basic Statistics, 6th Edition</i> , Cengage, 2013 Sold by university or available on Amazon at: https://www.amazon.com/Understanding-Basic-Statistics-Charles-Henry/dp/1111827028/ref=sr_1_3?ie=UTF8&qid=1516190376&sr=8-3&keywords=understanding+statistics+brase
<i>Specific pages to be provided by instructor:</i>	
BS	Hamburg, <i>Basic Statistics</i> , HBJ, 1979
OM	J. Heizer & B. Render, <i>Principles of Operations Management 11th Edition</i> , Prentice Hall,

Select (optional) internet sites:

<http://www.brint.com> for business research in information and technology
<http://www.blackwellpublishing.com/essentialmedstats/004.pdf> - clear explanation of st. dev.
<http://www.asq.org> for American Society of Quality
<http://stats.bls.gov> for U.S. Bureau of Labor Statistics
www.econ-datalinks.org for American Statistical Association
www.sec.gov for public company filings (all U.S. public plus foreign public with U.S. listings)
www.hoovers.com for summary company info, comparables search, etc.
<http://www.statsoft.com/textbook/basic-statistics> for straightforward explanations of statistical terms and concepts

VI. SCHEDULE

Please note: Readings should be completed prior to class. Homework must be submitted before the following class. For example, homework assigned in class 2 is due before class 3. I will provide answers after that class. Homework should be emailed to zhomework11@gmail.com.

Homework codes:

EOS = End of section problems

EOC = End of chapter problems

CRP = Cumulative review problems

For reading codes: see section V-1.

#	Date	Instruction / Activity	Topic / Written Assignment Due (if any)	Reading Assignment (Read for assigned class)
1	T 09/03	Lecture	Introduction to statistics. ----- Histograms and frequency distributions ----- EOS 2.1: 8, 18b EOS 2.2: 5, 6 EOC 2: 2, 9 a-b	US: 1.1, 1.2 (skim) ----- US: 2.1 to p47 US: 2.2 p58-59 (mid)
2	T 09/10	Lecture	Mean, median and mode	US: 3.1 to p85, p88-89
		Homework	EOS 3.1: 4, 23	
		Lecture	Measure of variation (standard deviation) Sample variation vs. population variation Standard error of the sampling distribution	US: 3.2 to p101 (mid) <i>Optional reading</i> BS: p156-160
		Article	Summary explanation of measures of variation - good explanation of standard deviation, sampling distribution from p37 to end	Posted online
		Homework	EOS 3.2: 3, 14a EOC 3: 6a	
		Lecture	Normal (probability) distribution Area under the normal distribution (Z-table) Confidence intervals	US: 7.1-7.3
			Sampling	US: 7.4
		Homework	Central limit theorem ----- EOS 7.1: 5, 7 EOS 7.2: 5 a-b, 6 a-b, 8, (Extra practice, NOT ASSIGNED 7.2: 15, 20, 42) EOS 7.5: 8, 13 a-b, (Extra practice, NOT ASSIGNED 7.5: 18 a-c) EOC 7: 2, 6, 11, 13, 16, 20 (THESE EOC 7 ARE ALL OPTIONAL) Confidence interval hw distributed by instructor.	US: 7.5 to p308 (top)
			<i>Optional reading</i> See for description of additional probability distributions (binomial, Poisson): http://math.elon.edu/statistics112/prob_dist.html	

#	Date	Instruction / Activity	Topic / Written Assignment Due (if any)	Reading Assignment (Read for assigned class)
3	T 09/17	Lecture ----- Homework ----- Lecture ----- Homework	Probability Conditional probabilities ----- EOS 5.1: 9, 17, 21 EOS 5.2: 11, 21, 29 Probability homework in Excel distributed by instructor. ----- Decision trees. ----- EOS 5.3: 7 EOC 5: 3, 5, 8, 10	US: 5.1 US: 5.2 to p195 (mid), p198 <i>Optional reading</i> BS: p84-94 US: 5.3 to p208 (mid)
4	T 09/24	Review / Application ----- Homework	Application examples and Midterm Exam 1 review. ----- CRP (for sections to date): Chapters 1-3: 4, 8, 11 Chapters 4-6: 4 Chapters 7-9: 1, 6 a-b	p127 p264 p439
5	T 10/01	Exam	Midterm Exam 1. Sections: 2.1, 2.2, 3.1, 3.2, 5.1, 5.2, 5.3 (decision trees), 7.1, 7.2, 7.4, 7.5	--
6	T 10/08	Lecture ----- Homework	Permutations and combinations. ----- EOS 5.3: 21, 24 EOC 5: 15, 17, 18	US: 5.3 p208 (mid)-212
--	T 10/15	No Class	--	--
7	T 10/22	Lecture ----- Homework ----- Lecture ----- Article ----- Excel file ----- Homework	Linear correlation Linear regression ----- EOS 4.1: 2, 3, 4, 6, 11, 12 EOS 4.2: 1, 5 EOC 4: 4, 5, 10 ----- Regression ----- Math of multiple regression – calculations (optional) ----- Multiple regression example. ----- EOS 11.4: 5 a-c, 6 b, 7 b, d, 9 b, d, EOC 11: 10, 11 Additional Excel HW problems distributed by instructor	US: 4.1 to p141 US: 4.2 to p156 (mid) p159 (mid) – p160 ----- US: 11.4 to p538 (mid) Additional readings on multiple regression posted mydrive ----- Posted online
8	T 10/29	Review ----- Homework	Homework and Midterm Exam 2 review. ----- CRP (for section to date): Chapters 4-6: 7 b-d Chapters 10-11: 1	p264 p439
9	T 11/05	Exam	Midterm Exam 2. Sections: 4.1, 4.2, multiple regression (Excel spreadsheet), 5.3 (Permutations and combinations), 11.4	--

#	Date	Instruction / Activity	Topic / Written Assignment Due (if any)	Reading Assignment (Read for assigned class)
10	T 11/12	Lecture ----- Homework ----- Lecture ----- Guest Lecture 7:45-9:00pm ----- Homework	Hypothesis testing. -Mean tests ----- EOS 9.1: 4, 8, 11 a, 13 b-d, 17 a, 19 EOS 9.2: 4, 11, 13, 16 EOC 9: 2, 5, 7, 11 ----- Differences in means (independent samples) ----- <u>Optional section:</u> Differences in means (dependent samples) ----- Shawn Slon, Ex-day trader, financier Topic: Day trading; using mathematics to trade effectively http://www.dummies.com/personal-finance/investing/what-is-day-trading/ ----- EOS 10.2: 9 c, d, e; 10 c, d, e; 11a; 12a; 13a; 14a EOC 10: 5 a, c	US: 9.1 to p394 (mid) US: 9.2 to p406 (mid) ----- US: 10.2 to p463 (top) <u>Optional reading</u> BS: p198-202 ----- US: 10.1 (optional) See optional reading at link to left
11	T 11/19	Lecture ----- Homework	Estimation and forecasting ----- EOS 8.1: 5 EOC 8: 3 Additional HW distributed by instructor	US: 8.1 p345 Forecasting, modeling reading posted online
12	T 11/26	Lecture ----- Homework	Using Excel for statistical analysis. ----- Event planning spreadsheet ----- Capacity planning decisions ----- Waiting lines and traffic flow management (if time permits) ----- Distributed by instructor	<u>Optional reading</u> Using Excel part 1 and 2 (in reading/articles folder on mydrive) ----- Event planning file distributed by instructor ----- OM: Capacity planning p288-294 ----- OM: Waiting lines Traffic flow excel file
13	T 12/03	Review ----- Homework	Homework and Final Exam review. ----- CRP (for sections to date): Chapters 7-9: 8 Chapters 10-11: 5 Additional cumulative review problems distributed by instructor	-- p439 p554
14	TBD	Exam	Final exam. Sections: 8.1, 9.1, 9.2, 10.2, forecasting (Excel spreadsheet), capacity planning, waiting lines and traffic flow.	--