DATA-BASED DECISION MAKING (38:533:542:01)
SPRING 2013
CLASS SCHEDULE: FRIDAYS 4:30PM-7:10PM
LOCATION: LEVIN BUILDING, ROOM 004

Instructor: Professor Patrick F. McKay
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Office Hours: Fridays 4:00PM-5:00PM or by appointment.

Course Overview:

The purpose of this course is to provide students an introduction to statistical methods and tools for use in data-based decision-making in applied business and human resource management-related settings. I will focus primarily on developing your conceptual understanding of different statistical techniques (e.g., analysis of variance, t-tests, correlation, regression, multiple regression) so that you know which techniques are appropriate for addressing a particular applied question (e.g., Which training program, A or B, worked the best?). I will not require you to memorize equations and I will provide a sheet containing necessary equations for each in-class assignment and examination. My goal is that you develop a basic-level understanding of statistics and NOT for you to become statistical wizards! I only ask that you meet me half-way by completing the assigned readings (which is necessary to perform well in the course) and in-class practice problems, since the statistics are cumulative in nature. That is, each technique learned is necessary for understanding additional techniques that will be presented.

Course Objectives:

- To provide students with a conceptual understanding of statistical methods for use in solving applied problems.
- To familiarize students with data analyses and interpretation.
- To help students develop basic computer skills for analyzing data.

Required Text and Materials:

Gravetter, F. J., & Wallnau, L. B. (2012). *Statistics for the behavioral sciences* (9th ed.). Belmont, CA: Wadsworth.

You will also need to a simple calculator, one that can perform basic functions (add, subtract, multiply, & divide), squares, and square roots. It is your responsibility to bring this to class with you daily; I will not have surplus calculators (or batteries!) for your use during tests. Also, students are encouraged to bring laptops to class on days when data analyses will be performed (to be announced in advance of these particular class meetings).

Suggested Texts:

Dretzke, B. J. (2011). *Statistics with Microsoft Excel*. Upper Saddle River, NJ: Pearson Prentice Hall. Available for $22.45 at http://www.amazon.com/Statistics-Microsoft-Excel-5th-Edition/dp/0321783379/ref=dp_ob_title_bk.

NOTE: Additional course materials will be accessible on sakai@rutgers available at https://sakai.rutgers.edu/portalt . You can create an account using your Rutgers University login and password. Once you logon to the system, you can access the diversity course number (38:533:542:03) under your course schedule. Click on the "Resources" hyperlink to gain access to course materials.

Students with Disabilities

Any student with a disability is encouraged to consult the professor to provide documentation of her/his disability and describe personal needs for accommodation. Laptop computers are acceptable for note-taking only as an accommodation for a documented disability.

Attendance

While I do not formally require attendance, it is highly recommended. Given the cumulative nature of the class, falling behind on lectures will impair your learning of new statistical concepts based upon prior material. If you must miss class, be sure to get a copy of the class notes from a reliable classmate. Be sure to contact the course Teaching Assistant to get copies of class handouts.

Homework/In-class Exercises (**Worth 10% of course grade**):

I will provide a series of homework/in-class assignments throughout the course to provide you practice in performing particular statistical analyses. These will be graded on a pass/fail basis (0 = fail and 10 = pass), but I expect each of you to exert effort to complete the in-class problems to enhance your learning. **In-class problems cannot be made up for those who miss class (i.e., avoid missing class)**. Also, homework assignments with sample problems will be available for students to complete on their own for practice.

Teaching Assistant Help Sessions

Monica Navandar (monica.navandar@gmail.com) is the Teaching Assistant (TA) for the course. Unless otherwise noted, Monica will hold help sessions on Mondays 7:30PM-9:30P and Fridays 4:00PM-6:00PM to address your questions about lectures, in-class assignments, sample problems, and exams. In addition, all questions about how to use Excel to conduct analysis will be answered at the help sessions. Attendance at the help sessions is at your discretion.

Course Examinations (**Worth 40% of course grade**):

1. Three 15–20 item multiple-choice exams will be administered during the semester. The exams will include a mixture of multiple choice questions and those require you to compute statistics and/or interpret statistical data provided.

2. The administration of early and make-up examinations is discouraged. However, a make-up examination will be given during the final week of class. Eligibility for make-up exams will be determined on a case-by-case basis, and may require documentation as needed.

Course Project-"Analyzing Real-World Data" (**Worth 30% of course grade**):

Students are required to complete a final course project, in teams of 3-4 students, designed to assess your proficiency in analyzing and interpreting statistical data. Each group will randomly select a series of questions to answer based on data from employees of a Midwestern insurance company (to be provided later). The project should include the following components:

1. A 10-20 page technical document (12-point font, double-spaced) reporting the results of your analyses. You should indicate what statistics you ran to answer your assigned questions, what the results of these analyses were, and include your output from Excel. This component of the project assesses your ability to identify the appropriate statistic to use and to complete these calculations in Excel. This information must be presented in a way that a non-statistical person would understand, meaning that statistical jargon should be defined and stated in simple terms. A way to ensure this is to allow a person who has no background in statistics to read your report, and then revise it based upon her/his feedback to make certain they clearly understand the information.

2. An "executive memo" answering the questions posed to you in non-technical terms. Review and explain your answers to the questions without resorting to language or statistical symbols that a layperson would not understand. This portion of the project assesses your ability to interpret and write about statistics for people without your expertise.

Each group is required to deliver a 10-minute, Powerpoint presentation summarizing their results. Each group member is required to participate in the presentation, and **those who fail to do so will fail the project**. 'A-level' reports will be those that present the statistical information clearly and simply (i.e., those that minimize the use of statistical jargon), and provide accurate (or correct) information regarding the statistical results. Reports that are heavy on statistical jargon that an "everyday person" would not understand will be heavily penalized as such individuals would not understand the information presented.

The projects are due on **April 29th, 2013** and late projects will not be accepted.

Academic Honesty:

Cheating and plagiarism are prohibited and these will result in an "F" grade for the class, and the proper university officials will be notified for possible disciplinary action. Please visit this website for clarification regarding Rutgers's academic integrity policies
http://academicintegrity.rutgers.edu/integrity.shtml

Peer Ratings for Course Project **(Worth 20% of Course Grade)**

Students are expected to contribute dutifully to the work of the group on their course project. Accordingly, team members are required to rate their teammates on their contribution to the course project on the following 2 dimensions:

1. Level of contribution (or involvement) by each student in completing the course project.

2. Quality of work contributed by each student in completing the course project.

A rating form will be provided in the "Resources" folder on sakai, and ratings are due on the final day of regular class. Peer ratings will be strictly confidential.

Grading:

Your final grade in this course will be based on the average of percentage points earned on tests, handout assignments, the final group project, and peer evaluations.

Grading Scale for the Course:

Percentage Points	Letter Grade
90% - 100%	A
87% - 89%	B+
80% - 86%	B
77% - 79%	C+
70% - 76%	C
69% and below	F

Course Schedule (subject to change):

DATE	MATERIAL COVERED	READINGS/ACTIVITIES
Jan 28	Introduction to Statistics Frequency Distributions	Chapter 1–pgs. 4-12 & 21-30 Chapter 2–pgs. 39-55
Feb 4	Central Tendency Variability	Chapter 3 Chapter 4
Feb 11	Z-scores: Location of scores and standardized distributions Probability	Chapter 5 Chapter 6–pgs. 164-184
Feb 18	Probability and samples: The distribution of sample means Introduction to hypothesis testing	Chapter 7 Chapter 8
Feb 25	**FIRST EXAM: Chapters 1– 8**	**NONE**
Mar 4	Introduction to the t statistic The t test for two independent samples	Chapter 9 Chapter 10
Mar 11	The t test for related samples	Chapter 11
Mar 18	**SPRING BREAK – NO CLASS**	
Mar 25	Introduction to Analysis of Variance	Chapter 12
Apr 1	Working with Excel Preparation for Class Project	**NONE**
Apr 8	**SECOND EXAM: Chapters 9–12**	**NONE**
Apr 15	**OPTIONAL Course Project Workday**	
Apr 22	Correlation	Chapter 15
Apr 29	Introduction to Regression **"Analyzing Real-World Data" group projects are due today (place in sakai dropbox before 1:00PM)**	Chapter 16
May 6	Group presentations	**NONE**
May 13	**FINAL EXAM: Chapters 15–16**	**NONE**