DATA-BASED DECISION MAKING (38:533:542:01)
FALL 2018
CLASS SCHEDULE: MONDAYS 7:20PM-10:00PM
LOCATION: LEVIN BUILDING, ROOM 103

Instructor: Professor Patrick F. McKay
Office: Levin Building, Room 207
Phone: (848) 445-5989
Email: pmckay@smlr.rutgers.edu
Office Hours: Mondays 4:00PM-5:30PM, Wednesdays 4:00PM-5:30PM 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?). My goal is that you develop a basic-level understanding of statistics and NOT for you to become statistical wizards! **Because later topics are based on previously-covered material, it is essential to keep up with the assigned readings**.

Required Text and Materials:

Gravetter, F. J., & Wallnau, L. B. (2017). *Statistics for the behavioral sciences* (10th ed.). Belmont, CA: Wadsworth.

There is a student study guide which is recommended but not required.

This course makes use of SPSS for calculations. SPSS is installed on the computers that will be used by students during classes and exams. SPSS is available on computers in all RU computer labs. If students wish they can purchase a license for SPSS which is good through June 30, 2019. SPSS will work on Win, Mac, and Linux machines. To purchase go to http://oit.rutgers.edu/ and click on "Software Portal." Log in with your NetID. On the right-hand part of the screen you will see a list of "Featured Publishers." Click on "IBM/SPSS" and choose the software you want to license. The license fee is $100.

SMLR Learning Goals**:** Data-Based Decisions is designed to meet sections of two SMLR Learning Goals:

II) Quantitative Skills – Apply appropriate quantitative and qualitative methods for research on workplace issues.
   o   Formulate, evaluate, and communicate conclusions and inferences from quantitative information
   o   Apply quantitative methods to analyze data for HR decision making including cost-benefit analyses, ROI, etc. (HRM)

VI) Application – Demonstrate an understanding of how to apply knowledge necessary for effective work performance
   o   Apply concepts and substantive institutional knowledge, to understanding contemporary developments related to work

      o   Understand the internal and external alignment and measurement of human resource practices (HRM)

Course-Specific Learning Goals: Upon completion of this course students should understand:

1. The fundamentals of sampling and probability and the role they play in inferential statistics.
2. The use and calculation of descriptive statistics.
3. The use and calculation of statistics testing significant differences.
4. The statistics of relationships and causality.
5. The interpretation of statistics commonly used by human resource professionals.
6. Making better human resource decisions with statistics.
7. Explaining analysis outputs both orally and in writing.

In addition, the student should be familiar with SPSS:

1. Creating a dataset.
2. Defining variables
3. Transforming variables and creating new variables.
4. Performing all statistical analyses covered in the course using SPSS.
5. Interpreting SPSS output.

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 course number (38:533:542:01) 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 material presented earlier. If you must miss class, be sure to get a copy of the class notes from a reliable classmate.

Teaching Assistant Help Sessions

TBD is the Teaching Assistant (TA) for the course. Unless otherwise noted, the TA will hold help sessions on TBD in Levin Building Room (???) to address your questions about lectures, homework assignments, and exams. In addition, all questions about how to use SPSS to conduct analysis will be answered at the help sessions. The TA will also take help session requests by appointment at her/his convenience. Attendance at the help sessions is at your discretion.

Homework Exercises (**Worth 20% of course grade**):

I will provide a series of homework assignments throughout the course to provide you practice in performing particular statistical analyses. Homework will be placed on sakai a week before class under the 'Assignments' tab. Each assignment is worth 10 points and is due on the day of class listed on the syllabus. Late assignments will not be accepted unless the student can provide a valid explanation for it (e.g., doctor-verified sickness, inclement weather, instructor cancels class, or unforeseen tragic events such as death in the family). Assignments must be submitted to the 'Assignments' tab in sakai. **Exercises submitted on paper will not be accepted**.

Course Examinations (**Worth 30% of course grade**):

1. Two 50 item multiple-choice exams (Midterm and Final) will be administered during the semester. The exams will include a mixture of multiple choice questions and those require you to analyze and 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, will require a valid excuse (e.g., doctor-verified sickness, inclement weather, business trips or events where your attendance is required by your employer, instructor cancels class, or unforeseen tragic events such as death in the family)., and given at the instructor's (or teaching assistant's) convenience.

Academic Integrity

To maintain the integrity of student test scores, all examinations will be carefully proctored. If cheating is detected, then the instructor will notify university officials for disciplinary actions. An academic integrity contract is attached to this syllabus. Students must submit a signed copy of the contract before the second class they attend. Otherwise, **ASSIGNMENTS AND TESTS HANDED IN BEFORE THE CONTRACT IS SIGNED WILL RECEIVE A "0" GRADE**.

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 organizational data (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 SPSS. This component of the project assesses your ability to identify the appropriate statistic to use and to complete these calculations in SPSS. 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 10-15 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 **December 3rd, 2018** and <u>late projects will not be accepted</u>.

<u>Peer Ratings for Course Project</u> **(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.   <u>Level of contribution</u> (or involvement) by each student in completing the course project.

2.   <u>Quality of work</u> 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. <u>Peer ratings will be strictly confidential</u>.

<u>Grading</u>:

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

<u>Grading Scale for the Course</u>:

<u>Percentage Points</u>	<u>Letter Grade</u>
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/ASSIGNMENTS
Sept 10	Introduction to Statistics and Frequency Distributions	Chapters 1 & 2
Sept 17	Central Tendency and Variability	Chapters 3 & 4
Sept 24	z-scores: Locations of Scores and Standardized Distributions and Probability	Chapters 5 & 6 **Assignment 1 due**
Oct 1	Probability and Samples: The Distribution of Sample Means Introduction to Hypothesis Testing	Chapter 7 & 8 **Assignment 2 due**
Oct 8	Introduction to the t Statistic The t Test for Two Independent Samples	Chapters 9 and 10 **Assignment 3 due**
Oct 15	The t Test for Two Related Samples	Chapter 11 **Assignment 4 due**
Oct 22	**MIDTERM EXAMINATION**	NONE
Oct 29	Introduction to Analysis of Variance	Chapter 12
Nov 5	Two-Factor Analysis of Variance	Chapter 14 **Assignment 5 due**
Nov 12	Correlation	Chapter 15 **Assignment 6 due**
Nov 19	Introduction to Regression	Chapter 16 **Assignment 7 due**
Nov 26	**NO CLASS–THANKSGIVING HOLIDAY**	Chapter 17
Dec 3	Introduction to Regression (con't)	**Assignment 8 due "Analyzing Real-World Data" group projects due**
Dec 10	Group presentations	NONE
Dec 17	**FINAL EXAM**	NONE

Academic Integrity Contract
(To be signed and turned in at the second class)

All members of the Rutgers University community are expected to behave in an ethical and moral fashion, respecting the human dignity of all members of the community and resisting behavior that may cause danger or harm to others through violence, theft, or bigotry. All members of the Rutgers University community are expected to adhere to the civil and criminal laws of the local community, state, and nation, and to regulations promulgated by the University. All members of the Rutgers University community are expected to observe established standards of scholarship and academic freedom by respecting the intellectual property of others and by honoring the right of all students to pursue their education in an environment free from harassment and intimidation. Please see http://policies.rutgers.edu/PDF/Section10/10.2.11-current.pdf for details regarding the Student Code of Conduct. Please see http://academicintegrity.rutgers.edu/files/documents/AI_Policy_9_01_2011.pdf for details regarding the Academic Integrity Policy.

Similarly, all students and faculty members of the academic community at the School of Management and Labor Relations should uphold high standards for personal conduct, ethical behavior, and professional integrity. In the area of academic integrity, students are expected to refrain from cheating, fabricating information, plagiarizing, inappropriately denying others access to material, and facilitating others in academic dishonesty. Please see http://policies.rutgers.edu/sites/policies/files/10.2.13%20-%20current.pdf for detailed descriptions of each type of action.

Any of the following acts, when committed by a student, is an act of academic dishonesty and decreases the genuine achievements of other students and scholars. Academic dishonesty includes, but is not limited to, any of the following:

Plagiarism/False Representation of Work
- Quoting directly or paraphrasing portions of someone else's work without acknowledging the source.
- Submitting the same work, or major portions thereof, including presentations, to satisfy the requirements of more than one course without permission from the instructor.
- Using data or interpretative material for a report or presentation without acknowledging the sources or the collaborators.
- Failing to acknowledge assistance from others, such as help with research, statistical analysis, or field data collection, in a paper, examination, or project report.
- Submitting purchased materials such as a term paper as your own work.
- Copying or presenting material verbatim from any source without using quotation marks.
- Copying from any source and altering a few words to avoid exact quotation, without the appropriate documentation or by using improper documentation of the source.
- Rewording the major concept found in a source but then omitting documentation or improperly citing the source.
- Submitting as one's own any work created by someone else (e.g., paper, project, speech, video, exercise, etc.) without crediting them. Large duplication of someone else's work should be avoided unless you obtain express permission from both the instructor and originator of the work.
- Fabricating or misrepresenting data or information
- Forging signatures

Cheating
- Copying work on examinations.
- Acting to facilitate copying during an exam.
- Sharing answers through technology or in written or verbal form when such interactions are prohibited
- Using prohibited materials, such as books, notes, phones, or calculators during an examination.
- Working with another student on an assignment when such collaboration is prohibited.
- Stealing or having in one's possession without permission any materials, or property belonging to or having been generated by faculty, staff, or another student for the course.
- Willfully offering to do another student's work so they may represent it as their own
- Assisting another student in cheating or plagiarizing
- Doing another student's work, excluding collaborative learning assignments or joint assignments approved by the instructor.

Engaging in any of the above behaviors can result in an F on the examination or project, an F in the course, denial of access to internships, suspension for one or more semesters, or permanent expulsion from the School of Management and Labor Relations at Rutgers University.

I, _____ understand the Policies on Academic Integrity and the Student Code of Conduct at Rutgers University and the School of Management and Labor Relations. Furthermore, I understand the consequences of unethical behavior.

We all share a responsibility in creating an ethical environment. I resolve to uphold and support high standards for ethics and integrity at Rutgers University. If I see, hear, or observe violations of ethics and integrity I will report them to my instructor, Department Chair, or Dean.

Student Signature: _____ Date: _____

Student Name (Please Print): _____

Rutgers University ID: _____