

Jacksonville University
COURSE SYLLABUS
for
DSIM301 - Business Statistics
Spring I 2015 (ADP)

COURSE INFORMATION

Course Hours / Dates: Mondays, 6:00 pm ~ 8:50 pm, January 5 – February 23

Location: D216

Website: <http://www.drjimmirabella.com/dsim301a> (& Blackboard)

COURSE DESCRIPTION

This is an introductory course in statistics and its applications to business. Topics include: descriptive statistics, basic probability concepts, estimation, hypothesis testing, ANOVA and regression. Microsoft Excel will be used as a tool throughout the course.

LEARNING GOALS & OBJECTIVES

LG1. BUSINESS EXPERTISE: Students will have core competencies in:

LO1-4. management

LO1-5. marketing

LG5. APPLIED TECHNOLOGY SKILLS: Students will have a functional understanding of business application technologies

LO5-1. Students will create a financial or operational analysis using the advanced features of a spreadsheet program.

LG6. ETHICAL ISSUES AWARENESS:

LO6-1. Students will be able to identify ethical issues involved in business affairs and problematic situations.

LO6-2. Students will demonstrate knowledge of the consequences of unethical behavior and illegal business behavior.

PHILOSOPHY OF TEACHING & LEARNING

The course will mainly be taught as a facilitated lecture, with all lectures provided online for students to view before class, so the class time is used for review, clarification and practice. As this course is quantitative and qualitative in nature, a portion of the course will utilize the computer, while the major portion will involve class discussion and experiential learning. Class participation and completion of practice assignments are vital to learning.

COURSE MATERIALS

Textbook: David M. Levine, Timothy C. Krehbiel and Mark L. Berenson. Business Statistics: A First Course, Prentice-Hall, 6th edition, 2013, ISBN#: **978-0132807265**.

(available as an ebook through www.coursesmart.com -- go to <http://www.pearsonhighered.com/educator/product/Business-Statistics-A-First-Course-CourseSmart-eTextbook-5E/9780136065883.page> for information)



Software: MS Excel will be utilized throughout the course for all applications.

INSTRUCTOR INFORMATION

Instructor: Dr. Jim Mirabella, *Associate Professor of Decision Sciences*

Bio: Dr. Jim Mirabella has a Doctorate in Management from Nova SE University, an MBA in Quantitative Methods from Auburn University, and a BS in Operations Research / Statistics from the U.S. Air Force Academy. Dr. Jim has been teaching for 27 years (including the past 16 with Jacksonville University), and has served as an operations research analyst in the U.S. Air Force and has held statistical positions in Fortune 100 corporations and served as the Director of Institutional Research at FCCJ. He also teaches Operations Management, Quantitative Analysis and Organizational Behavior.

Office Location: DCOB Room 134

Office Hours: Mon & Wed 11:30 am – 2 pm, 4 – 6 pm / Other times by appointment

Office Phone: (904) 256-7905

Email: jmirabe@ju.edu (preferred means of contacting instructor; emails will typically get a reply within 24 hours, often the same day)

STUDENT RESPONSIBILITIES

- **Attendance:** While attendance is not checked regularly, excessive absences will likely impact one's grade since some of the material on the exams come from class lectures (some of which is not in the text).
- **Recommended Problems** will only be covered upon student request. These problems are indicative of the types of problems that will appear on exams. Students are encouraged to practice as much as possible, as it is the best preparation for success. The key to understanding statistical concepts that are tested is to be comfortable with the problem solving techniques first. All recommended problems will be posted on the course website.
- **ADP Online Component -- Quizzes:** There will be four online quizzes in the course. Each quiz will consist mainly of conceptual questions based on the textbook material. The use of the textbook and all notes are permitted on all quizzes. While each quiz must be completed prior to the established deadline to receive credit, they may each be attempted multiple times with the highest score counting. These quizzes are designed to help prepare students for major exams while giving ample opportunities to earn maximum credit. Quizzes not attempted prior to the deadline will receive a zero. There is no penalty for multiple attempts, as they are excellent practice for exams. Collaboration is permitted on the online quizzes.
- **Exams:** There will be two exams in the course. Each exam will consist of statistical problems and conceptual questions. The use of the textbook and all notes are permitted on all exams. Excel will be used as instructed in class. The final exam is not comprehensive. Cheating on exams will not be tolerated under any circumstances, and will be handled in accordance with JU policy. **All suspected incidents of cheating will be turned in to the Dean's office for academic dishonesty without hesitation.**

- **Make-Up Exams:** There are no make-up exams in this class except in rare circumstances that are documented and unavoidable (at the discretion of the instructor). If a student is aware of a future absence, prior arrangements must be made to reschedule the exam.
- **Lateness:** In-class exams begin at the start of class and have a set stop time; students who are late will have less time to complete the exam. Online quizzes will receive a zero if submitted late without prior permission.
- **Grading:** Students will receive the grade they earn, and grades are not negotiable.

GRADING

<u>Grading criteria</u>	
Exams 1 & 2	70%
Online Quizzes	30%

<u>Grade Determination</u>	
90.0 ~ 100.0	A- to A
80.0 ~ 89.9	B- to B+
70.0 ~ 79.9	C- to C+
60.0 ~ 69.9	D- to D+
0.0 ~ 59.9	F



Vision

We build thoughtful, engaged leaders who create sustainable high performance and value in their careers, organizations, communities, and world.

Mission

We do so by delivering high quality, relevant and accessible educational programs and scholarship that build the capacities of current and future leaders for:

- Championing ideas that provide perspective and advantage through a creative, action-oriented **strategic mindset**
- Applying specialized knowledge and methods that make a sustainable difference and demonstrates significant **business expertise**
- Displaying outstanding **leadership skills** across their entire careers
- Acting with the highest standards of **professionalism** evidenced by their ethical character and integrity

The Davis College of Business
“Professional Results In Daily Efforts Program”
(P.R.I.D.E.)

“We the students and faculty of the Davis College of Business understand learning is a process of interaction, partnering, and collaboration. To create the learning environment necessary to produce the future generators of sustainable value for business and society at large, we understand we must focus our daily efforts to achieve lasting success. Therefore, as indicated by my signature below, I agree to support the tenets and professional behaviors of the P.R.I.D.E. program outlined below applicable to my position within the Davis College of Business.”

As DCOB Faculty, you can count on us to:

- *Treat each student in a fair and equitable manner*
- *Come to class prepared*
- *Start and end class on-time*
- *Honor office hours*
- *Make required text books and reading materials relative to the material taught*
- *Use a proper mix of IT and lecture (Blackboard)*
- *Return assignments in a timely manner*
- *Allow peer review to reduce “free-riders” on team projects*

As DCOB Students, you can count on us to:

- *Respect everyone’s right to have a positive academic experience*
- *Respect other students’ property*
- *Respect other students’ cultures and opinions*
- *Support academic integrity*
- *Be enthusiastic and productive members of team projects*
- *Come to class on-time*
- *Come to class prepared*
- *Be attentive and participate*
- *Turn assignments in on-time*
- *Respect others by not having real or virtual side conversations*
- *Turn off electronic devices during class*
- *Dress appropriately*

Please Print Name

Signature

Date

JACKSONVILLE UNIVERSITY POLICIES

JU Honor Code: Jacksonville University students are expected to adhere to the highest standard of academic honesty. Academic misconduct is defined as follows:

*Any form of cheating, including concealed notes during exams, copying or allowing others to copy from an exam, students substituting for one another in exams, submission of another person's work for evaluation, preparing work for another person's submission, unauthorized collaboration on an assignment, submission of the same or substantially similar work for two courses without the permission of the professors. Plagiarism is a form of Academic Misconduct that involves taking either direct quotes or slightly altered, paraphrased material from a source without proper citations and thereby failing to credit the original author. Cutting and pasting from any source including the Internet, as well as purchasing papers, are forms of plagiarism. (Warshauer, M., 2002.)**

** Matthew Warshauer, History Department, Central Connecticut State University, Academic Misconduct/Plagiarism; Questionnaire; <http://www.history.ccsu.edu/>*

The faculty regards all incidents of academic misconduct as major offenses, which merit disciplinary action; faculty members will handle each case of academic misconduct in accordance with their own course policy. Following action, it is recommended that faculty members report all incidents of academic misconduct to the Senior Vice President for Academic Affairs, via division chair and appropriate college dean, in order to identify multiple incidents.

ADA Policy: Jacksonville University provides reasonable accommodations to students with disabilities who need such assistance under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. Disability categories can include, but are not limited to, visual, physical, hearing, speech impairments, learning disabilities, and other impairments such as cardiovascular and circulatory conditions, psychological disorders, blood serum illnesses, diabetes, and epilepsy. A student with a visible or non-visible disability who requests "reasonable accommodation" to his or her condition should provide medical and/or psychological documentation of the disability to the Student Life Office. It is preferable and recommended that documentation be provided immediately after acceptance to the University. Notice of a disability, but not the medical documentation, may be provided by the Student Life Office to any administrator, dean, and/or professor on a need-to-know basis, but only after consultation with the student. Specialized services are provided through the Student Life Office. Students must request "reasonable accommodations" in a timely manner so that faculty can plan for those accommodations. Students with disabilities are also responsible for maintaining the same academic levels as other students attending class, maintaining appropriate behavior, and providing timely notification of any special needs. Services provided may include: special arrangements when needed (change of rooms, referrals to tutors), letters of classroom accommodation based on medical recommendations and student suggestions and experience, and individual counseling or referral for counseling. Recommendations for "reasonable accommodations" in the classroom may include priority seating, change of classroom, tape recording of lectures, extra time for tests/quizzes/assignments, alternative test formats, etc. Students who wish to be tested or reevaluated may arrange for testing through the Student Life Office at the student's expense. Faculty who wish to refer students for testing also should contact the Student Life Office.

PRE-COURSE ASSIGNMENT: Look below at WEEK 0. View the **Statistics Precourse Lecture** video in COURSE DOCUMENTS on Blackboard, as this is the complete lesson.

Tentative Dates & Unit Topics

Week 0: **PRE-COURSE ASSIGNMENT (due BEFORE the first day of class)**

Topics: Introduction, Statistical Thinking, Basic Terminology, Types of Variables, Levels of Data, Misuses of Statistics, Frequency Distributions, Graphs, Central Tendency, Dispersion

Chapter 1: Problems 1.4, 1.6, 1.8, 1.20, 1.22

Supplementary Problem 1: Identify the following as either Nominal, Ordinal, Interval or Ratio.

- S1a) ____ the gender of students
- S1b) ____ the weights of students in pounds
- S1c) ____ the students' Math SAT scores
- S1d) ____ the students' ranking of their professor on a 5-point scale for excellence
- S1e) ____ the amount of Red Bull drunk by students in fluid ounces
- S1f) ____ the time in minutes students spend texting while listening to Stats lectures
- S1g) ____ the room temperature of the Stats class in degrees Fahrenheit
- S1h) ____ the zip codes of each student's current residence
- S1i) ____ the letter grades earned by students in Statistics

Supplementary Problem 2: At your place of employment, 100 employees are randomly selected and asked the distance of their commute to work. From this group a mean of 15.2 miles is computed. Identify the following as either (A) Observation, (B) Parameter, (C) Population, (D) Sample, or (E) Statistic.

- S2a) ____ all employees at that place of employment
- S2b) ____ the computed 15.2 miles
- S2c) ____ the 100 students selected
- S2d) ____ 6 miles distance traveled by one employee
- S2e) ____ the mean commute distance for all employees at that place of employment

Chapter 2: Problems 2.5, 2.24, 2.18abd (*use intervals of 75-100, 100-125, ... 200-225 in Frequency_Distribution.xls*), 2.94abd (*use intervals of 1.85-1.90, 1.90-1.95, 1.95-2.00, 2.00-2.05, 2.05-2.10, 2.10-2.15 in Frequency_Distribution.xls*) **Also practice doing these manually.**
Note: these are problems 2.1, 2.4, 2.20, 2.27 in the 5th edition

Chapter 3: Problems 3.56abd (*use Descriptive_Statistics.xls*), 3.57abd (*use Descriptive_Statistics.xls*) **Also practice doing these manually.** **Note: these are problems 3.52, 3.57 in the 5th edition**

Supplementary Problem 3: Suppose you applied to be a waiter or waitress at a local restaurant and asked the manager what a typical dinner shift was like. How might the manager describe the typical size of a party at a table? The mode would be useful, since there are a few repeated values. You might have an occasional table for 20, but, for the most part, parties consist of one to five people. What if you asked for the typical size of a check, so you could estimate your tips? The mode makes no sense, since you would not likely have many repeats, and the mean is easily distorted by that table for 20, but the median tells you that half the time you can expect to earn a certain amount of money in tips. Now suppose you were a real estate agent and you were asked by a client about the "typical" home in a subdivision. Being the astute agent you are, you have gathered the following information on each house in the subdivision: Price, square footage, numbers of bedrooms, number of bathrooms, and age. What statistic (mean, median, or mode) would you use to describe each aspect of the typical home and why? Try to imagine the type of answers you would be giving your client based on your selections for a subdivision that has 100 homes with a wide variety of sizes and prices.

Supplementary Problem 4: Given a sample of 50 IQ scores ranging from 80 to 145, if the 145 were accidentally typed in error as a 415, what would be the impact on the following statistics? (answer with INCREASE, DECREASE or REMAINS THE SAME).

- S4a) _____ The mean
- S4b) _____ The median
- S4c) _____ The standard deviation
- S4d) _____ The range

Week 1: **January 5**

Topics: Counting Techniques, Probability, Discrete Probability, Normal Probability

Chapter 4: Problems 4.12, 4.24, 4.47

Supplementary Problem 5: Counting Techniques

1. A restaurant offers 3 choices of meat, 2 choices of potatoes, 4 choices of vegetables, and 5 choices of dessert. How many different possible meals can be made if a customer must select one item from each category?
2. If a student can select 1 of 3 language courses, 1 of 5 math courses, and 1 of 4 history courses, how many different schedules can be made?
3. A pollster randomly selected 4 of 10 available people. How many different groups of 4 are possible?
4. An overnight express company must include 5 cities on its route. How many different routes are possible, assuming that it matters in which order the cities are included in the routing?
5. A national pollster has developed 15 questions designed to rate the performance of the President of the U.S. The pollster will select 10 of these questions. How many different arrangements are there for the order of the 10 selected questions?
6. How many different 5-digit ZIP codes are possible if digits can be repeated?
7. If a student can select 5 novels from a reading list of 20 for a course in literature, how many different possible ways can this selection be done?
8. A quiz consists of six multiple choice questions. Each question has three possible answer choices. How many different possible answer keys can be made?
9. At the Baskin Robbins, how many different two-scoop cones can you order if there are 31 flavors of ice cream and 3 types of cones?
10. An identification tag consists of two letters followed by three numbers.
 - a. How many different tags can be made if repetitions are allowed?
 - b. If repetitions are not allowed?

Chapter 5: Problems 5.11, 5.13, 5.14, 5.37abc, 5.40cde

Chapter 6: Problems 6.7 – 6.13, 6.32abc, 6.36, 6.37

Required: Complete **Online Quiz 1** prior to the established deadline.

Week 2: **January 12**

Topics: Sampling, Confidence Intervals, Sample Sizes

Chapter 7: Problems 7.4, 7.10, 7.14

Chapter 8: Problems 8.11-8.13, 8.19, 8.24, 8.36, 8.37, 8.53-8.56, 8.59

Required: Complete **Online Quiz 2** prior to the established deadline.

Week 3: January 19

Topics: Review for EXAM ONE, Intro to Hypothesis Testing
Required: Prepare for **EXAM ONE** (complete the Pre-Test as directed).

Week 4: January 26

Topics: **EXAM ONE** (to be completed at the start of class)
One Sample Hypothesis Tests, Errors in Hypothesis Testing, p-values
Chapter 9: Problems 9.10, 9.12, 9.14, 9.22, 9.23, 9.42-9.45, 9.49-9.54

Week 5: February 2

Topics: Two Sample Hypothesis Tests, Analysis of Variance
Chapter 10: Problems 10.8, 10.10, 10.20, 10.24, 10.31, 10.34, 10.60, 10.61
Required: Complete **Online Quiz 3** prior to the established deadline.

Week 6: February 9

Topics: Correlation & Simple Linear Regression
Chapter 12: Problems 12.64abcdeg, 12.66abcdf
Required: Complete **Online Quiz 4** prior to the established deadline.

Week 7: February 16

Topics: Chi Square Testing
Chapter 11: Problems 11.5, 11.8, 11.10, 11.14, 11.16, 11.22, 11.24, 11.33
Required: Prepare for **EXAM TWO** (complete the Pre-Test as directed). This is not comprehensive.

Week 8: February 23

Topics: Complete **EXAM TWO** in class. Details of the exam will be discussed in class.