San José State University
College of Business
Department of Marketing & Decision Sciences
BUS235A Business Analytics
Spring 2018

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Office Hours:	M 10-12, and online, and by appointment.

Course Web Site

This course takes place on Canvas. Your Canvas login is the same as your MySJSU login. A tutorial on using Canvas can be found here.

Course Description

Many successful companies derive their competitive edge from the innovative use of business analytics. In this course you will master several fundamental skills for business analytics: data manipulation, data visualization, and statistical modeling. We will make extensive use of the R statistical environment, a cutting-edge business analytics tool.

Course Goals and Student Learning Objectives

Upon completion of this course students will:

- Understand the central role of analytics in today's business landscape

- Be able to use R to analyze business data.

- Be able to use R to visualize business data.

- Use regression modeling to gain deeper insight into business data.

Business Analytics Certificate Learning Outcomes

Upon completion of the Certificate Program in Business Analytics, students will have:

- an understanding of the breadth of the discipline of business analytics*
- basic depth of knowledge for the various aspects of business analytics*
- competencies associated with undertaking custom-designed research
- an understanding of the role of custom-designed research in business planning
- competencies associated with data mining
- an understanding of the role of data mining in business planning
- an understanding of the importance of integratively assimilating data from diverse sources (*i.e.*, consumer, competition, macro market, and company data)

- an understanding of the role of business metric dashboards in business planning

* Indicates a learning outcome directly supported by this course.

Required Texts/Readings

Required Readings

Using R for Data Analysis and Graphics: Introduction, Code and Commentary by J. H. Maindonald, Centre for Mathematics and Its Applications, Australian National University. 2008. Freely available as a pdf on the course website.

If you prefer, there is also a paid version of the book, called *Data Analysis and Graphics Using R: An Example-Based Approach* by John Maindonald and W. John Braun (ISBN 0521762936). The paid version fleshes the material out more fully than the free version. (It also has much more material than we will cover in this class.) The paid version is not required for the class, and the online lectures will flesh out the material from the free version. But if you are the type of learner who does best by reading a book and you find that the free version is too terse, you may want to look into the paid version.

Assignments and Grading Policy

The course grade will be based on homework assignments (25%), exploration assignments (25%), a final project (40%), and class participation (10%).

Course grades will be assigned based on the following cutoffs:

$98 \leq$ A+ $\leq$ 100

$93 \leq$ A $<$ 98

$90 \leq$ A– $<$ 93

$87 \leq$ B+ $<$ 90

$83 \leq$ B $<$ 87

$80 \leq$ B– $<$ 83

$77 \leq$ C+ $<$ 80

$70 \leq$ C $<$ 77

$63 \leq$ D $<$ 70

$60 \leq$ D– $<$ 63

F $<$ 60

Classroom Protocol

Your command of the business analytics material and the development of critical thinking skills will be facilitated in the context of 1) online lectures and 2) online discussions and 3) office hour consultations. Online lectures will generally do one or more of the following: 1) further explain material from the text, 2) provide examples of concepts covered by the text, and/or 3) provide pertinent material which goes beyond the scope of the text. Discussions will be conducted asynchronously on Canvas. You are expected to contribute your answers, thoughts, and questions and engage with your classmates in a civilized but intellectually rigorous discussion.

Homework Guidelines

Homework will be due at 11pm on Sunday at the end of each week when assigned and may be turned in on Canvas. I monitor the class discussion list to answer questions most actively on weekdays, so I encourage you to start the homework during the week if your schedule permits. I will also monitor the class discussion over the weekend, but not as frequently. If you know in advance that you will have difficulty turning in an assignment on time please notify me as soon as possible.

Homework should be submitted as a single file, in either Word or pdf format.

Participation Grade

Participation is worth 10% of your grade. I've set the bar low for obtaining full participation points: you must ask or answer five questions on the discussion list over the course of the class. Each question you ask or answer will be worth 2 points, up to a maximum of a full 10 points towards your participation score. Of course, I encourage you to participate more than that, and expect many of you will contribute much more than five posts. (Please note that the exploration assignments will require specific posts to the discussion lists. These posts will count toward your grade on the exploration assignment, not toward your participation grade.)

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Information on add/drops are available at
http://www.sjsu.edu/advising/faq/index.htm#add
Information about late drop is available at
http://www.sjsu.edu/aars/policies/latedrops/. Students should be aware of the current deadlines and penalties for adding and dropping classes.

University Policies

Academic integrity

Students should know the University's Academic Integrity Policy that is available at
http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf.

Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial_affairs/index.html

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

Student Technology Resources

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

Technical Help

For technical help, you can access any of the following resources.

SJSU Information Technology Support Services (ITSS) help desk: Password resets, log-in issues, email support, account requests: http://www.sjsu.edu/at/hd/support/

Canvas: http://www.sjsu.edu/at/ec/canvas/index.html or http://guides.instructure.com/

You can also submit a help ticket at https://isupport.sjsu.edu/ecampus/ContentPages/Incident.aspx

Learning Assistance Resource Center

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic

potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. The LARC website is located at http:/www.sjsu.edu/larc/

SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. The Writing Center website is located at
http://www.sjsu.edu/writingcenter/

Peer Mentor Center

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering "roadside assistance" to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop –in basis, no reservation required.

College of Business Program Goals:
(Not all program learning goals are covered in every course)

1. Business Knowledge
  - Understand basic business principles and demonstrate discipline-specific competencies as applied to local and global environments.
2. Communication
  - Communicate ideas clearly, logically, and persuasively in oral and written format, using technology appropriately.
3. Ethical Awareness
  - Recognize, analyze, and articulate solutions to ethical issues that arise in business.
4. Leadership, Teams and Diversity
  - Comprehend the challenges and opportunities of leading and working in diverse teams and environments.
5. Critical Thinking
  - Comprehend, analyze, and critically evaluate complex and unstructured qualitative and quantitative business problems, using appropriate tools and technology.
6. Innovation
  - Recognize, analyze, and articulate strategies for promoting creativity and innovation.

College of Business Policies:

To ensure that every student, current and future, who takes courses in the Boccardo Business Center has the opportunity to experience an environment that is safe, attractive, and otherwise conducive to learning, the College of Business at San José State has established the following policies:

Academic Honesty:
Faculty will make every reasonable effort to foster honest academic conduct in their courses. They will secure examinations and their answers so that students cannot have prior access to them and proctor examinations to prevent students from copying or exchanging information. They will be on the alert for plagiarism. Faculty will provide additional information, ideally on the green sheet, about other unacceptable procedures in class work and examinations. Students who are caught cheating will be reported to the Judicial Affairs Officer of the University, as prescribed by Academic Senate Policy S04-12.

Course Schedule

The schedule is subject to change with fair notice.

Module	Date	Topics, Readings, Assignments, Deadlines
1	1/22 – 1/28	**Course Overview and Basics of R** Read the syllabus Read Chapters 1 and 2 Install R Watch lecture videos Turn in Homework 1 Turn in Exploration: What is business analytics, and who's using it?
2	1/29 – 2/4	**Basics of R – 2** Watch lecture videos Turn in Homework 2 Turn in Exploration: Find a data set for the final project.
3	2/5 – 2/11	**Data Visualization – 1** Read Chapter 3 Watch lecture videos Exercises: Turn in Homework 3 Turn in Exploration: Browsing the R Graph Gallery.
4	2/12 – 2/18	**Data Visualization – 2** Watch Lecture Videos Turn in Homework 4 Turn in Exploration: What else can R do?
5	2/19 – 2/25	**Linear Regression – 1** Read Chapter 5 Watch Lecture Videos Turn in Homework 5 Turn in Exploration: So…what is analytics?

6	2/26 – 3/4	**Linear Regression – 2** Watch Lecture Videos Turn in Homework 6 Turn in Exploration: What can analytics do for you?
7	3/5 – 3/11	**Linear Regression – 3** Watch Lecture Videos Turn in Homework 7
8	3/12 – 18	**Optional Topics** Turn in Final Project.