



Raymond J. Harbert College of Business

BUAL 3600, Business Analytics II

Spring 2014

Instructor: Dheeraj Raju, PhD

Office: Lowder, Room # 424

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Office Hours: Mon 3 – 5, Tue/Thurs 2 – 3 (All other times by appointment)

Prerequisites: MGNT 2600 or equivalent

Text: **Business Analytics: Second custom edition for Auburn University** (ISBN 978-1-256-134333), which is based on *Business Statistics* (2012) by Sharpe, N.R., De Veaux, R.D., and Velleman, P.F.

Course Objectives:

- Understand the importance of data-driven business decisions.
- Understand the use of inference in business.
- Be able to conduct contingency analysis and classification analysis in business.
- Learn the fundamentals of predictive business modeling.
 - Be able to construct, evaluate, and use simple regression models for business prediction.
 - Be able to construct, evaluate, and use simple regression models for business inference.
 - Be able to construct, evaluate, and use multiple regression models for business prediction.
 - Be able to construct, evaluate, and use multiple regression models for business inference.
 - Be able to use variable selection methods for building multiple regression models in business.
- Be able to model business data with general linear models.
- Be able to fit basic forecasting models to time series data with business applications.
- Understand the use of index numbers in business applications.
- Understand the use of predictive business modeling in the following business application areas:
 - Marketing Analytics
 - Six-sigma/Quality Control
 - Data mining

Resources:

- Internet access to Canvas is essential. All our communications (emails) will be through Auburn University e-mail address ([userid@auburn.edu](mailto:user@auburn.edu)). I WILL NOT RESPOND TO EMAILS OR MESSAGES ON CANVAS. Lectures/homeworks/handouts etc. will be posted on Canvas. It is extremely important to check Canvas and email regularly to stay informed about the class. It is the responsibility of the student to contact the Information Technology Help Desk to have this address forward mail to the e-mail address that you regularly check.
- Class Lectures and Notes: The instructor will make class notes and presentations available on Canvas. Students are expected to bring printed (not electronic) lecture slides and bring them to class.
- Analytics Software: Microsoft Excel and Minitab will be used in this course. Both are available in the College of Business computing labs.
- Calculator: TI-1706 SV or TI-503 SV.



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Topics covered:

- Hypothesis testing
- Two-sample t-test
- Goodness-of-fit tests
- Simple linear regression
- Multiple regression
- Time series analysis
- Introduction to Data Mining

Attendance and Class Participation:

Students are expected to attend **ALL** regularly scheduled classes. Confirmed necessary absences are excused, which include medical, conferences, accidents, etc. A sign-in sheet will be the official record of classroom attendance. At the beginning of every class, students need to sign in, therefore please be punctual. All students are expected to be actively involved in class discussions. **No cell phone** use, keep all your cell phones turned off. **No use of computers or tablets.** No chatting inside the class. Use of cell phone, computers, tablets, chatting in class will be counted as absent. Attendance and class participation is part of your grade.

Course Policies:

The instructor and students in this course will act with integrity and strive to engage in equitable verbal and non-verbal behavior with respect to differences arising from age, gender, race, physical ability, and religious preferences.

Grading:

Grades are determined as follows:

Test 1 – 20%

Test 2 – 20%

Test 3 – 20%

Homework – 10%

Quizzes – 10%

Mini Cases – 10%

Attendance and Class Participation – 5%

Final Exam – 25%



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Exams:

Each Test will be worth 100 points. Refer to the class calendar for tentative test dates. Remember that the dates shown on the calendar are only tentative and subject to change. Test dates will be confirmed and announced in class. In case of absence, it is the responsibility of the student to be informed about the right test date. There will be a test review before every test, which will help you prepare. It is very important that students attend the review class. **There will be 3 tests in total; the lowest test score will be dropped.** In the extreme event that a student misses any exams and provides a University approved excuse in accordance with the following guidelines, the student will be given the opportunity to make up the missed exam. The student **MUST** communicate at least 24 hours **before** the exam day and let the instructor know about a valid excuse for missing the exam. Communicating with the instructor is very important for any makeup exams. There will absolutely be **NO** make-up exams if the student fails to communicate with the instructor within the 24 hours before the exam. Lack of preparation for an exam is not a valid excuse and students should not be tempted to "fake" a doctor's excuse due to lack of preparation. The penalty for this is severe and could affect you for the rest of your career. This makeup exam will cover the same material that was covered on the missed exam. **If a student fails to provide sufficient documentation of the absence or the absence is not a University approved excused absence, the student will receive a zero for the missed exam. A ZERO ON A MISSED EXAM CANNOT BE REPLACED WITH THE FINAL EXAM. ALL STUDENTS MUST TAKE ALL EXAMS.** Three in-class exams and one comprehensive final exam will be given during the semester. Exams will cover material in the assigned readings, homework, lecture and lecture slides. Students should bring pencil, calculator (TI-1706 SV or TI-503 SV), eraser, and Student ID to all exams. Where needed, a formula sheet will be provided with the exam. Students will not be allowed to use programmable calculators during the exam. Use of a programmable calculator during an exam will be considered an academic honesty violation.

Homework Assignments:

Homework due dates will be announced in class and will also be made available on Canvas. All assignments must be submitted on the specified date and time; **no late assignments** will be accepted. All homework is due at the beginning of class and not in between or after. **ALL HOMEWORKS MUST BE STAPLED.** Also, assignments must be submitted in 8.5" X 11" white paper. The instructor will provide guidelines for submitting homework on Canvas. Homework can be handwritten or typed but clearly legible. The instructor will post homework solutions after the submission.

Quiz:

All quizzes will be posted online through Canvas and the quiz time/date will be announced in class. **There will be no make-up quizzes.**

Mini-Cases:

Two brief cases will be assigned. These cases are designed to allow you to apply the statistical concepts to a business situation. Instructor will assign teams of three people early in the semester so that you may begin working with your team. Teams will be responsible for allocating the work among their members. Each case is worth 5% of the course grade. The mini-cases will be evaluated on the quality of both your analysis and explanation. More detailed information for the cases will be available on Canvas. The cases will facilitate practical insight for the application of statistics.

Grading Scale:

90 – 100 = A

80 – 89 = B

70 – 79 = C

60 – 69 = D

≤59 = F



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Academic Misconduct:

All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Special Accommodations for Students with Disabilities:

Students who need special accommodations in class, as provided for by the Americans With Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring a copy of their Accommodation Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 1288 Haley Center, 844-2096 (V/TT).

Contingency Plan for Emergencies: If normal class activities are disrupted due to illness, emergency, or crisis situation (such as an H1N1 flu outbreak), the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials. In order to complete the course material, lectures may be videotaped and posted for students to view. In the event of an emergency which disrupts a single class session (for example, a weather event), the missed lecture may be posted as a video and the required assignments will be due at the next class meeting.



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Date	Topics
Week 1 – Jan 9	Syllabus
Week 2 – Jan 14, 16	Review 2600 - Chapter 5, 10 – Normal distribution, sampling distributions
Week 3 – Jan 21, 23	Review 2600 - Chapter 11, 12, – Confidence intervals for mean and proportion, Chapter 13 – Hypothesis testing – proportions and means
Week 4 – Jan 28, 30	Chapter 13 – Hypothesis testing – proportions and means
Week 5 – Feb 4, 6	Chapter 13 – Hypothesis testing – proportions and means, Chapter 14 – Comparing Two Means
Week 6 – Feb 11, 13	Chapter 14 – Comparing Two Means, Test 1
Week 7 – Feb 18, 20	Chapter 15 Contingency/Classification Analysis
Week 8 – Feb 25, 27	Chapter 15 Contingency/Classification Analysis, Chapter 16 – Simple Regression
Week 9 – March 4, 6	Chapter 17 – Understanding Residuals in Regression, Test 2
Week 10 – March 11, 13	Spring Break
Week 11 – March 18, 20	Chapter 18 – Multiple Regression
Week 12 – March 25, 27	Chapter 19 – Selecting Variables for Predictive Models
Week 13 – April 1, 3	Chapter 19 – Selecting Variables for Predictive Models, Test 3
Week 14 – April 8, 10	Chapter 20 – Time Series Analysis
Week 15 – April 15, 17	Chapter 24 -Decision Making & Risk, chapter 25 – Data Mining
Week 16 – April 22, 24	Review and course wrap-up