BUS102 Business Analytics
Driehaus College of Business
DePaul University
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Online (asynchronous)

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COURSE DESCRIPTION

Businesses are increasingly turning to data analytics to evaluate and improve business decisions. The ability to collect, analyze, and use data to inform important decisions is a critical skill for modern business students. This course introduces the growing role of big data and quantitative strategies to answer business questions. To that end, you will analyze real world business data and perform business analytics to solve problems in accounting, economics, finance, management, and marketing. The course also introduces some basic statistical techniques and the spreadsheet software, Excel®, which is used to analyze specific business problems.

LEARNING OUTCOMES

- Understand the big picture of data analytics as a transformative force in the world of modern business
- Recognize the ethical implications of collecting, managing, and using data in business.
- Define "big data" and the increasing role of evidence-based decision making to support business decision making.
- Explain the differences between predictive, prescriptive, and descriptive analytics, and the business questions that can be answered with each approach.
- Use Excel to perform basic statistical operations and prepare visual representations of business data.
- Apply the principles of business analytics to examples in marketing, finance, management and entrepreneurship, accounting, and economics.
- Communicate the insights and applications identified within quantitative data
- Identify opportunities to use analytics to address unstructured business problems

D2L COURSE WEBSITE

This course makes extensive use of D2L (http://d2l.depaul.edu), the course management system used at DePaul University. If you have not used D2L before, please read the following training materials: http://offices.depaul.edu/information-services/services/technology-training/topics/Pages/d2l.aspx

COURSE READINGS

There is no required textbook for the course, but there are a number of assigned readings. Assigned readings are posted on D2L under Content.

ONLINE EXCEL MODULE

You and your classmates have varying levels of prior exposure to, and experience with, data organizing programs like Microsoft Excel, Google Sheets, and Apple's Numbers. To ensure that all students have an adequate understanding of these common data organizing programs, every student must complete an online module focused on Microsoft Excel (but generalizable to the other programs) by the third week of class. How to access the module is found on D2L under Content|Lecture05. Microsoft Excel is exclusively used in the course.

PROBLEM SETS

To help you start looking at business problems through the lens of data analytics, you will be assigned four problems sets. The first problem set tests your Excel skills and is due in week 4. The other problem sets are assigned in the second half of the course and gives you the opportunity to work with business data. The goal of these problem sets is to propose a quantitative approach to a business question and execute an empirical analysis. The sum of all problem sets is worth **45%** of your final grade. Problem Sets are to be completed individually, not to be worked on with others.

GROUP ASSIGNMENTS

There is one group assignment for you to on work with your classmates where you work with others to answer business analytical questions. The group assignment is worth **15%** of your final grade.

PARTICIPATION

You are also graded on your group participation. You have **three days to respond to your group** from when the assignment is posted on D2L. If you fail to respond in time and your group proceeds without you, your participation grade will be reduced. Participation in groups is required and is worth **10%** of your final grade.

FINAL EXAM

The final exam for the course brings together the material in Part II of the course and tests a your ability to think through a business problem and the ways in which data analysis could help inform business decisions related to accounting, economics, finance, management, or marketing. The final is worth **30%** of your final grade.

COURSE SCHEDULE

Introduction to Business Analytics is a 10-week course divided into two parts:

PART I: THE BASICS
Week 1: The Growing Role of Business Analytics
Objective: Data analytics is transforming the world of business. The course begins with an introduction to business analytics and its growing role in modern business decision-making as well as a formal definition of Big Data
Week 2: Big Data Decision-Making and Ethics
Objective: In the last ten years the ability of companies to collect more and more data relating to every aspect of their business–from the production process to the wants and desires of their customers–has expanded dramatically. Businesses have massive amounts of data and are rapidly exploring ways to maximize the value of this data. You will learn about the opportunities and challenges that having *this* much information affords to businesses and decision-makers throughout business organizations. You will learn about how companies are expanding their use of data analytics across every business discipline. You will then learn about how business analytics helps provide evidence-based decision-making to prevent these mistakes. In addition, you will learn about the ethics of data collection, management, usage, and privacy, which is an increasing public concern.
Week 3: Answering Business Questions with Data Analytics
Objective: All data analysis starts with a ***question***. Your business education will teach you the *right* questions to ask and this course introduces you to the quantitative strategies for answering these questions. Most questions in data analytics boil down to one of three types: 1) **predicting** an outcome, 2) **evaluating** information, or 3) **identifying** a causal relationship. Business analytics applies these quantitative strategies from data analytics to business questions. Different types of questions require different types of analyses, and knowing which analysis to perform is an important part of business analytics. **Assignment: Online Excel Module**

Week 4: The Basic Tools of Business Analytics

Objective: Now that you have learned some of the ways analytics can address real-world business problems, it is time to start introducing some of the basic tools we use to organize, analyze, and visualize business data. This week you will be introduced to data analysis software packages and how they differ across business disciplines, as well as explain how software and statistics can be combined to help with visual presentations of data (e.g., bar charts, scatter plots) and some basic statistical concepts (e.g., means, standard deviations, correlation coefficients, and the difference between correlation and causation), as well as data mining vs. structured analysis.

Problem Set #1: **Visual and Quantitative Problems Using Excel**

PART II: THE APPLICATION OF ANALYTICS ACROSS BUSINESS DISCIPLINES

Week 5: Data Analytics as a Predictive Tool – Applications in Marketing

Objective: Understanding consumers and identifying market opportunities provide savvy marketers with a competitive edge. Indeed, conducting smart marketing research, correctly analyzing the data collected, and discovering insights from the data can make or break a company. This week you will focus on two different real world marketing case examples in which data analytics play a pivotal role.

Problem Set #2: Consumer Choice Analysis

Week 6: Data Analytics as a Predictive Tool – Applications in Finance

Objective: Finance is about finding the best use of money and analytics provides a tool for making good financial decisions. Financial managers use data for strategic decisions, investors use data for investment decisions, and financial institutions use data in every transaction. This week you will focus on two different real world finance case examples in which financial institutions have used data analytics to improve the performance of their businesses.

Group Assignment #1: Investment Strategy Analysis

Week 7: Data Analytics as an Evaluative Tool – Applications in Management & Entrepreneurship

Objective: For many organizations, success is largely dependent on people and ideas. Those who are able to successfully compete on people, or appropriately evaluate new ideas for launching a business, are optimizing their chances for success. This week you will focus on two different real world case examples in which organizations have used data analytics to predict whom to hire and evaluate worker productivity, and how entrepreneurial firms use data to support decision-making.

Week 8: Data Analytics as an Evaluative Tool – Applications in Accounting
Objective: Accounting Analytics explores how financial statement data and non-financial metrics can be linked to financial performance. Further, learning how data is used to assess what drives financial performance and to forecast future financial scenarios will ultimately determine the success of the company. This week you will focus on a real world accounting case in which organizations have used data analytics. **Problem Set #3: Accounting Data Analysis**
Week 9: Data Analytics to Identify Causality – Applications in Economics
Objective: Economics as a discipline begins with a few basic assumptions and utilizes these as building blocks for models of behavior. Models are only useful if they can be tested and quantified, and economists have developed a large toolkit of statistical models to do just that. These empirical approaches are also quite valuable to businesses who are trying to make the best business decisions including how best to price their products.
Week 10: Preview of Advanced Analytics and Careers in Analytics
Objective: Highlight the introductory nature of the material covered in the class and discuss the ways in which more sophisticated analytical techniques could be even more useful to businesses. Discuss the demand for students with excellent analytics skills and potential careers in analytics. Lastly, you will learn about the growing number of jobs and career opportunities related to business analytics. **Final Exam (due during finals week)**

COURSE GRADING

To assess the extent to which students have acquired the skills necessary for a strong foundation in business analytics, the various components of the course are graded as follows:

Problem Sets:	45%
Group Assignments:	15%
Final Exam:	30%
Participation:	10%
TOTAL:	100%

GRADING SCALE

The course follows the traditional grading scale, which appears below:
A [93-100]; A- [90-93]; B+ [87-90]; B [83-87]; B- [80-83]; C+ [77-80]; C [73-77]; C- [70-73]; D+ [67-70]; D [60-67]; F [0-60].
Grades are *earned* not *given*. Students should neither expect extra points nor ask for any other adjustment to their grade.

ADDITIONAL POLICIES, EXPECTATIONS & ACCOMODATIONS

Disability: Please let me know if you need any accommodations for a disability. Some aspects of the course could be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we will work with the Center for Students with Disabilities (CSD) to help determine the appropriate accommodations.

Academic Integrity: All work done for this course must adhere to the University Academic Integrity Policy, which you can review in the *Student Handbook* or by visiting Academic Integrity at DePaul University (http://academicintegrity.depaul.edu).
Violations of the academic integrity policy will result in a zero for that assignment/problem set/exam.

Respect: The classroom is a place for learning. This is best achieved by asking questions, thinking out loud, and even making mistakes. Please treat all of your classmates with respect - we will all struggle at some point or another. If anyone has concerns about the behavior of other people in the class, please see me right away.

Extension Requests: If you are absent for medical, mental health or personal reasons and need an extension for the problem sets, fill out the form linked on the following page: https://offices.depaul.edu/student-affairs/support-services/academic/Pages/absence-notification.aspx. Once the Dean of Students sends the email notification, it is your responsibility to email me regarding your extension request.

Submitting Assignments after the Due Date & Time: If you turn in an assignment after the due date and do not have a university excused reason for doing so (see above), your grade will be discounted at my discretion.