

**Tentative Syllabus for BUS 102 - 632**  
**Business Analytics**  
**Driehaus College of Business**  
**DePaul University**  
**Spring 2022**

**Instructor:** Mohammad Mirhosseini

Email: mmirhoss@depaul.edu

Office Hours: Fridays 11:00 AM to 12:00 PM. It will be online through Zoom.

**Lecture:** Mondays, Wednesdays 11:50 AM –1:20 PM, at DePaul Center, Room 8209. You can also join the lectures by Zoom. The link will be posted on D2L.

**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.

**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
- Define big data and the increasing role of evidence-based decision making to support business decision making.
- Recognize the ethical implications of collecting, managing and using data in business.

- 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

**Requirements:** This is a Flex course. The students can either attend in-person classes or join through Zoom. The following items are essential for this course:

- Frequent access to a computer that connects to the Internet.
- Access to DePaul email account; you need to check it regularly.
- Access to Microsoft Office (Word, Excel, PowerPoint). Currently-enrolled students receive a subscription to Office 365 Education Plus. Students can install Microsoft Word, PowerPoint, Excel, Outlook, OneNote, Publisher, Access, and OneDrive for Business for the duration of their enrollment. Additionally, students receive OneDrive storage for academic work.
- The ability to view video files.

**Course Website on D2L:** 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:

<https://resources.depaul.edu/student-success/technology/Pages/desire2learn.aspx>

**Online Excel Module:** Students have different levels of knowledge and exposure to 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). The details on how to access the module and when is the deadline to complete that module will be announced later.

|                 |                              |            |
|-----------------|------------------------------|------------|
|                 | Homeworks                    | 55         |
| <b>Grading:</b> | Participation in Discussions | 15         |
|                 | Final Exam                   | 30         |
|                 | Total                        | 100 points |

**Grading scale:** The final Grading is based on: A = 93-100, A- = 90-92, B+ = 87-89, B = 83-86, B- = 80-82, C+ = 77-79, C = 73-76, C- = 70-72, D+ = 67-69, D = 60-66, F =  $\leq 60$

### Course Schedule:

- **PART I: THE BASICS**

- **Week 1: The Growing Role of Business Analytics**

We will start with an introduction to business analytics and its growing role in modern business decision-making. We will discuss how companies are expanding their use of data analytics across every business discipline. In addition, You will then learn about how business analytics helps provide evidence-based decision-making to prevent these mistakes.

- **Week 2: Big Data and Ethics**

Data analytics is transforming the world of business. This module is an introduction to business analytics and its growing role in modern business decision-making. You will learn about how companies are expanding their use of data analytics across every business discipline. In this introduction, we will discuss common mistakes in the absence of data analytics, such as drawing broad conclusions from small samples. You will then learn about how business analytics helps provide evidence-based decision-making to prevent these mistakes. Lastly, you will learn about the growing number of jobs and career opportunities related to business analytics.

- **Week 3: Answering Business Questions with Data Analytics**

All data analysis starts with a question. Your business education will teach you the right questions to ask and this course will introduce 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. Other topics discussed this module include (i) the difference between correlation and causation, and (ii) data mining vs. structured analysis.

- **Week 4: The Basic Tools of Business Analytics**

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. In this module, you will be introduced to data analysis software packages and how they differ across business disciplines. We will 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).

- **Part II: The Application of Analytics across Business Disciplines**

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

Finance is about finding the best use of money and data 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 different real-world finance case examples in which financial institutions have used data analytics to improve the performance of their businesses, from predicting creditworthiness to algorithmic trading.

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

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. One example of this is quantifying the effect of advertising on sales. This week you will focus on two different real-world marketing case examples in which data analytics play a pivotal role.

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

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**

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 example in which an organization uses data to analyze firm operations.

- **Week 9: Data Analytics to Identify Causality - Applications in Economics**

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**

As you've learned in this course, data analytics is transforming the world of business. This module highlights the introductory nature of the material covered in the course and discusses the ways in which more sophisticated analytical techniques could be even more useful to businesses. It also will introduce you to the demand for analytics skills on the job market and potential careers in analytics.

**Resources for students with disabilities:** Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) by emailing

csd@depaul.edu and/or visiting the virtual office during pandemic. The virtual office will be staffed Monday-Friday from 9:00 a.m. to 5 p.m. (CST).

Virtual Office: [www.tinyurl.com/CSDVirtualOffices](http://www.tinyurl.com/CSDVirtualOffices)

**Excused Absence:** In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification form through the Dean of Students office.

<https://offices.depaul.edu/student-affairs/support-services/academic/Pages/absence-notification.aspx>

Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

**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.

**Online Course Evaluations:** Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [campusconnect.depaul.edu](http://campusconnect.depaul.edu).

### **Sexual and Relationship Violence:**

Academic relationships are based on communication, trust and respect, and as a DePaul community, we share a commitment to take care of one another. Sometimes, material raised in class may bring up issues for students related to sexual and relationship violence or other trauma. In other instances, students may reach out to faculty as a potential source of help

and support. It is important for students to know that faculty are required to report information reported to them about experiences with sexual or relationship violence to DePaul's Title IX Coordinator. Students should also know that disclosing experiences with sexual or relationship violence in course assignments or discussion does not, in itself, constitute a formal report to the University and will not begin the process of DePaul providing a response.

Those seeking to report an incident of sexual or relationship violence to DePaul should:

- use the attached link to do so here ([https://cm.maxient.com/reportingform.php?DePaulUniv&layout\\_id=4](https://cm.maxient.com/reportingform.php?DePaulUniv&layout_id=4))
- contact the Title IX Coordinator (312-362-8066 or [titleixcoordinator@depaul.edu](mailto:titleixcoordinator@depaul.edu)) or
- contact Public Safety (Lincoln Park: 773-325-7777; Loop: 312-362-8400)

Students seeking to speak confidentially about issues related to sexual and relationship violence should contact a Survivor Support Advocate in the Office of Health Promotion & Wellness for information and resources (773-325-7129 or [hpw@depaul.edu](mailto:hpw@depaul.edu)). More information is available at <http://studentaffairs.depaul.edu/hpw/shvp.html>. Students are encouraged to take advantage of these services and to seek help around sexual and relationship violence for themselves as well as their peers who may be in need of support.

**Enrollment/Withdrawal and Other Academic Policies:** All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on registration policies can be found at DePaul Central.

- **Withdrawal:** Students who withdraw from the course do so by using the Campus Connection system ([campusconnect.depaul.edu](http://campusconnect.depaul.edu)). Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalty.
- **Administrative withdrawal:** Administrative withdrawal appeals are submitted to and processed by the Dean of Students Office, and allow students to be retroactively withdrawn from classes for medical, mental health or personal crises even after the term has ended. More information is available on the Division of Student Affairs website.

**Syllabus Changes and Errors:** The instructor may make changes and updates to the course syllabus and schedule as needed. Students will be notified of any changes. If you find any broken links, outdated information, or other content that just seems ?off? somehow, please let me know so I can fix it. I really do appreciate students helping me find and fix mistakes or confusing wording in my materials.