BUSINESS INFORMATION&ANALYTICS (INFO)

INFO 4000 Foundations of Business (4 Credits)
The Introduction to Business course is an introduction to provides an overview of the business arena, how a business operates, and the supporting functions that are needed in any business enterprise. Students will identify forms of ownership and the processes used in operations, marketing, accounting, finance, personnel, information technology and general management. Moreover, students will learn about social responsibility and business ethics in concurrence with the Daniels College legacy.

INFO 4100 Survey of Business Analytics (4 Credits)
This course provides an overview of business analytics: how business data are collected, processed, and analyzed to support decision making. It will address both how to assess and use data that is readily available as well as how to start with corporate strategy and determine what data is needed, how to generate and process it. The course will also explore how corporate culture, ethics, and globalization can affect data management and analytic decision-making.

INFO 4120 Python Programming (4 Credits)
Python is a popular general purpose programming language which is well suited to a wide range of problems. With the right set of add-ons, it is comparable to domain-specific languages such as R and MATLAB. Python is a scripting language. The following topics will be covered: Importing data, Reading and writing files, Cleaning and Managing Data, Merging and joining DataFrame objects, Plotting and Visualization, Statistical Analysis, Fitting data to probability distributions and Linear models. Packages: Pandas, NumPy, matplotlib, statsmodels, Scikit-learn, and IPython. Principal Content Elements: 1. Introduction to Programming Logic and Design Using Python 2. Data Management 3. Statistical Analysis 4. Advanced Data Management and Statistical Analysis Prerequisites: STAT 4610.

INFO 4140 Business Databases (4 Credits)
This is an introductory database course which covers enterprise database design, modeling and implementation.

INFO 4200 Business Analytics Capstone Planning (2 Credits)
This course prepares the student for the Capstone course by identifying a faculty advisor, company, data, and a business issue to be addressed in the Capstone course in the final quarter. (Must be taken two quarters prior to INFO4400, with the exception of off-cycle students, who will take it the quarter prior to INFO4400.) This course may be taken by MSBA students only.

INFO 4240 Data Warehousing (4 Credits)
This course introduces students to the main components of a data warehouse for business intelligence applications. Students will learn how a data warehouse fits into the overall strategy of a complex enterprise, how to develop data models useful for business intelligence, and how to combine data from disparate sources into a single database that comprises the core of a data warehouse. Students will also explore how to define and specify useful management reports from warehouse data. Prerequisites: INFO 4100, INFO 4140.

INFO 4250 Business Data and Analytics (4 Credits)
Businesses make decisions and improve processes using their own and external data with a variety of data-driven and analytic techniques. This course introduces students to the business data landscape, data management in commercial organizations, and the data-driven decision-making process. Students explore the fundamental concepts behind how data and analytics can improve business performance, using their individual roles and companies as subject matter. Principal Content Elements: 1. Data-driven decision making and performance improvement. 2. Data management in organizations. 3.Hands-on experience creating visualizations for data-driven insights. INFO 4250 requires a Windows Operating System. MAC users will have to virtualize their machines, or have access to a PC for async, live session and graded assignments. The software used in this course is Power BI and Visio Pro, which are Windows-only applications. Power BI is free, and the Department of Business Information and Analytics will provide a license for Visio Pro.

INFO 4260 Data Management Platforms (4 Credits)
This course continues the data management track of the MSBA program, following INFO4140 (Business Databases) and INFO4240 (Data Warehousing). Students will be introduced to cloud computing (through AWS) to learn the basic principles to include architecture, operating systems, computing, storage, security, networking, and many other cloud platform features. Additionally, in the context of available cloud-based resources, students will be introduced to Artificial Intelligence (AI) services (through OpenAI) as an analytic tool to solve data-driven business problems.

INFO 4281 Project Management (2 Credits)
"Cheaper, better, faster" is the mantra of modern business. Innovation, providing new products and services or using improved business processes, has become a prerequisite for businesses to thrive and flourish. Project Management is a discipline which supports innovation by examining how to facilitate one time events such a constructing a building, installing a software system, taking a product to market, reengineering a marketing process, or merging an acquired company. In this course, we examine the science, practice the art, and discuss the folklore of project management to enable students to contribute to and manage projects as well as to judge when to apply this discipline. Prerequisite: INFO 4100. Co-requisite: INFO 4200.

INFO 4300 Predictive Analytics (4 Credits)
This course is designed to prepare students for managerial data analysis and data mining, predictive modeling, model assessment and implementation using large data sets. The course addresses the how, when, why and where of data mining. The emphasis is on understanding the application of a wide range of modern techniques to specific decision-making situations, rather than on mastering the theoretical underpinnings of the techniques. The course covers methods that are aimed at prediction, forecasting, classification, clustering and association. Students gain hands-on experience in using computer software to mine business data sets. Prerequisite: STAT 4610.

INFO 4340 Data Mining and Visualization (4 Credits)
In this course, students create business intelligence tools such as balanced scorecards, data visualization and dashboards to inform business decisions. The course will focus on the identification of metrics, measures, and key performance indicators for a variety of business operations, and will introduce numerous analytic methodologies to support the decisions made with regard to these metrics. The focus will be on the advantages and disadvantages of various modeling methodologies and implementations moving towards performance improvement and business understanding. Prerequisite: STAT 4610.

INFO 4360 Complex Data Analytics (4 Credits)
This course addresses the rapidly-growing demands on businesses created by the prevalence of big and unstructured data. These include management of big data, big-data analytics, analysis of unstructured data (to include text mining), and management and analysis of real-time (streaming) data. The focus will be on enhancing business decision-making in the presence of big data, and on how to create the greatest ROI with large data sets.

INFO 4381 Decision Processes (2 Credits)
The competency we want to begin to develop in this course is the ability to make sound business decisions. A quick Google search can reassure you that there is no lack of information about how to make good decisions. And much of that information is confusing, if not downright contradictory. Since you will be making the decisions which impact your business and your career, you will need to decide what constitutes a good decision as well as a good decision process. In this course, we will explore some of the voluminous material available, use it to make decisions, practice with useful tools, identify traps and pitfalls, assess results, and extract guidelines for a decision process. Then we will iterate to update and refine the process.

INFO 4390 Advanced Predictive Modeling with R (4 Credits)
This course serves as an introduction to advanced predictive modeling and statistical learning using the R statistical software. Specific topics include linear, non-linear, and logistic regression, classification, resampling methods, and non-linear regression, tree-based methods, and support vector machines. The students will learn how to communicate their results (business reports, dashboards, etc.) of the varioius modeling exercises and projects using RStudio and the RMarkdown suite of tools. Enforced Prerequisites and Restrictions: INFO 4100 and INFO 4300.

INFO 4400 Business Analytics Capstone (4 Credits)
This course gives students an opportunity to apply the knowledge and skills learned in this program to a real-world problem submitted by a partner business. Students take a business problem from model construction and data collection through an analysis and presentation of results to recommendations for specific business decisions. Prerequisite: INFO 4200.

INFO 4401 Business Analytics Fundamentals (4 Credits)
Business Analytics is a broad term that describes the process of using data to make business decisions. Data driven business decisions are both critical in modern business and hard to produce with reliable outcomes. This course introduces students to decision-making using probability and other statistical techniques to support and validate the chosen decision. Students will practice hands on business analytics skills for making data driven business decisions.

INFO 4590 Optimization (4 Credits)
This course introduces students to the basic optimization modeling techniques and tools as practiced by business analysts to help their enterprises make better-informed decisions. Applications will include mix, selection, assignment, distribution, transportation, financial management, planning, scheduling, and management implementations in a variety of business settings. The course will focus on problem definitions, problem configuration, spreadsheet solutions, LP Software (LINGO) solutions, and interpreting and implementing results.

INFO 4610 Business Statistics and Analytics (4 Credits)
Making high quality business decisions is hard. Using data to make business decisions makes the process better. This course introduces students to a variety of techniques in analytics and statistics that facilitate data driven business decisions. Time will be spend identifying appropriate techniques to apply in various scenarios, applying in detail some of the quantitative techniques, and using analytic outputs to inform business decisions. Both technical skills and clear communication of results and decisions will be covered. Choosing proper techniques, technical work using Microsoft Excel, proper interpretation of results, and decision making are skills practiced in this course.

INFO 4700 Topics in Business Analytics (0-10 Credits)
Exploration of current trends and topics in business analytics. Prerequisite: INFO 4100.

INFO 4830 Executive Education – Data Analytics for Decision Making (2 Credits)
In this Executive Education workshop, students will explore how companies organize around data and analytics and how leaders use data to make decisions. Every organization has data, but not every organization knows how to leverage it. This course focuses on the process of analyzing data so that you can discover what problems data can solve and what successes data can make possible. The course will also provide a focus on analytic modeling, using regression analysis and optimization to develop familiarity and skills in the analytic process, and will culminate with an opportunity to explore the challenges that participants' organizations are facing around their data-driven decision processes. *This short-form workshop does not follow the traditional quarter schedule. Please check daniels.du.edu/executive-education for class dates and formats.

INFO 4855 Executive Education – Data Visualization Using Power BI (2 Credits)

A picture is worth a thousand words—or a thousand spreadsheets. In today's complex business world, where the amount of data is overwhelming, being able to create and communicate through compelling data visualizations is a must-have skill for all business professionals. For too long data has been trapped behind scripts, wizards and code. That can change! This Executive Education workshop is a deep dive into the world of data and data visualization. You will learn how to create, analyze and evaluate large data sets that will enable you to turn mountains of raw data into meaningful stories that inform decisions and drive change. This is a software-heavy class where you will have the opportunity to practice technical skills in Microsoft Power BI, a free software application that lets users visualize data. *This short-form workshop does not follow the traditional quarter schedule. Please check daniels.du.edu/executive-education for class dates and formats.

INFO 4875 Executive Education – Strategic Advantage Using Data Analytics (2 Credits)

In today's business world, labor, capital, raw materials, and data are all essential to an organization's strategy. Many leaders have well-developed strategies for the first three, but they lack the understanding and direction to tackle the fourth: data. This Executive Education workshop focuses on how to build and implement a data strategy to improve organizational performance. Data and analytics programs offer great potential value, and to be effective they must align strategically across the business to deliver a positive return on investment. By understanding and integrating the five main components of a data strategy – Program, People, Process, Platform and Data – you will be able to grow your business and accelerate progress toward your organization's goals. *This short-form workshop does not follow the traditional quarter schedule. Please check daniels.du.edu/executive-education for class dates and formats.

INFO 4991 Independent Study (1-10 Credits)

INFO 4995 Independent Research (1-10 Credits)