BUSINESS INFORMATION & ANALYTICS (INFO)

Courses

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 for Business Analytics (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 and a variety of modeling and analytic techniques. This course introduces students to the business data landscape, data management in organizations, the data-driven decision-making process, and the fundamental concepts behind statistical inference and analytic modeling to support decision-making. Principal Content Elements: 1. Data-driven decision making. 2. Data management in organizations. 3. Statistical and analytic modeling. (STAT 4610 PREQ).

INFO 4280 Project Management (4 Credits)
In this course students examine the science, practice the art, and discuss the folklore or project management to enable them to contribute to and manage projects as well as to judge when to apply this discipline. The course also covers the use of MS Project Professional as a management tool and Crystal Ball as a Monte Carlo simulator for project exercises. Students also learn the fundamentals of process and project simulation for business decision-making. Prerequisite: INFO 4100.

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.

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 4380 Decision Processes (4 Credits)
This course addresses the process of decision making in the enterprise: who makes what decisions based on what information and for what purpose. Business Intelligence is premised on the HP motto: “in God we trust. All others bring data.” But what is the cost of collecting and analyzing the data and presenting the results, and what decisions justify that cost? Is the transformation from data to decision always rational, and what are the common pitfalls for human decision makers? We examine the results of recent experiments from behavior economics and their relevance to making business decisions. Prerequisite: INFO 4100.

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 various modeling exercises and projects using RStudio and the RMarkdown suite of tools. Enforced Prerequisites and Restrictions: 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 (2 Credits)
Businesses can never have perfect information; therefore, they must employ statistical techniques to improve the decision-making process. This course introduces students to managerial decision-making using probability and other statistical techniques to support and validate the chosen decision. A student project will focus on data collection (primary research), data analysis, decision analysis, written/oral presentation skills, and the development of an infographic.

INFO 4520 Health Informatics (4 Credits)
Annual health care spending in the United States exceeds 16% of GDP ($2 Trillion) and is expected to continue to increase. The effective use of information technology is perceived as an important tool in increasing the access to and quality of health care delivery in a cost effective manner. This course examines the role of health informatics in the health care deliver and management process. The objectives of this course are to familiarize students with the critical issues and challenges faced by those in the health care environment, what technologies are or will soon be available to potentially address these issues and challenges, potential barriers professionals employed in the health care field may face deploying and managing these technologies, and possible strategies to assist these professionals in addressing and overcoming these barriers. This course focuses on four major areas related to health informatics: the role of electronic health records, clinical decision support systems, analytics, and other e-health initiatives such as mobile technologies and telehealth.

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 4591 Optimization (2 Credits)
This is a two-credit version of INFO4590, intended for dual-undergraduate/graduate students only. Students have the option of taking the first ten lessons (spreadsheet modeling) or the second ten lessons (solver programming) and completing the deliverables associated with their track only. The students taking the spreadsheet track will focus on LOs 1, 2, and 3. The students taking the solver track will focus on LOs 1, 2, 4, and 5. All students will take the common INFO4590 final. The course is only offered in conjunction with INFO4590 during the Winter quarter.

INFO 4700 Topics in Business Analytics (0-10 Credits)
Exploration of current trends and topics in business analytics. Prerequisite: INFO 4100.
INFO 4991 Independent Study (1-10 Credits)
INFO 4992 Directed Study (1-4 Credits)