CSDA 5110 Analytics Programming with R (3)
In this course, students will learn how to program in R and how to use R for effective data analysis. Students will learn how to install and configure software necessary for a statistical programming environment. The course covers practical issues in statistical computing which includes programming in R, reading data in R, accessing R packages, writing R functions, debugging, and organizing and commenting R code. Topics in statistical data analysis and optimization will provide working examples.

CSDA 5130 Social and Ethical Issues in Analytics (3)
There is a subtle balance between improvements in business operations by using big data analytics and increased risk if (inadvertently) overstepping certain legal or social boundaries. This course addresses pros and cons of using data analytics in business and social, ethical and security issues associated with it. Several real world cases will be discussed and analyzed in the course.

CSDA 5210 Databases and Data Warehouses (3)
This course will provide a foundation for understanding organization databases technology by examining the way databases are designed, used and managed. The course will introduce fundamental concepts related to operational and data warehouse databases. The course will also cover the principles of building data warehouse and data mart cubes as well as extracting required data with SQL and MDX techniques. Students use various query designer software to improve their database query proficiency.

CSDA 5230 Data Analytics (3)
This course will introduce the field of data analytics, which has been defined as the extensive use of data, statistical and quantitative analysis, exploratory and predictive models, and fact-based management to drive decisions and actions. The course covers all analytics stages such as setting analytics project objectives, building data warehouse model, extracting-transforming-loading, implementing analytics, and creating visualization. Also, the application of selected data analytics techniques to business data is illustrated. Prerequisites: BUSN 5760 and CSDA 5210.

CSDA 5310 Data Visualization (3)
In this course, students will study techniques and methods for creating effective reports and dashboards based on principles from graphic design, visual art, perceptual psychology and cognitive science. Students will be introduced to the basic as well as advanced visualization tools. The course is targeted towards building better visualization tools for analytics. Prerequisite: CSDA 5230.

CSDA 5330 Data Mining (3)
In this course, students study algorithms and computational paradigms that allow computers to find patterns and regularities in data. Students will study what is currently regarded as the key elements of a more general process called “knowledge discovery” that deals with extracting useful knowledge from raw data. The course will cover association, clustering and classifying models and will illustrate the whole process by examples. Special emphasis will be given to the machine learning methods as they provide the real knowledge discovery tools. Prerequisites: CSDA 5110 and CSDA 5230.

CSDA 5410 Time Series Analytics (3)
The objective of the course is to give students a better understanding of the concepts and the technologies in time series analysis. The course equips students with various forecasting techniques and knowledge on modern statistical methods for analyzing time series data. This course covers three areas in time series analytics: I. Univariate methods; II. Regression methods; III. ARIMA models. Prerequisites: CSDA 5310 and CSDA 5330.

CSDA 5430 Predictive Analytics (3)
In this course, students are introduced to predictive modeling methods, approaches and tools. Students acquire skills in predictive analytics that allow them to develop and use advanced predictive analytics methods. They gain expertise in the use of popular tools and software for predictive analytics and learn how to develop predictive analytics questions, identify and select the most appropriate predictive analytics methods and tools, apply these methods to answer the respective questions, and prepare data-driven solutions. Prerequisites: CSDA 5310 and CSDA 5330.

CSDA 6010 Analytics Practicum (3)
This practicum puts into practice all the analytics concepts covered in the MS in data analytics program. Students use descriptive, predictive and prescriptive analytics and models, tools and methods to develop multidisciplinary business insights from data. They utilize skills that enable them to present solutions to problems and provide answers to business questions in various business disciplines through hands-on exercises and a term project. Should be taken in the student's last semester. Prerequisites: CSDA 5410 and CSDA 5430.