

DATA ANALYTICS (DATX)

DATX 5800 Quantitative Methods in Economic Analysis 3 s.h.

This course introduces to students the nuts and bolts of cleaning, manipulating, and crunching data in Python, and serves as adequate preparation to enable students to move on to other domain-specific courses that use Python as the learning tool.

Prereq.: STAT 2601 or STAT 2625 or STAT 3717 or STAT 3743 or ECON 3790, or ECON 3788 and ECON 3789, or ECON 3788 and BUS 3700, or permission of instructor.

DATX 5801 Data Management 3 s.h.

This course covers the basic concepts of database systems and emphasizes the real-world database applications relevant to the management of data in an organization environment. The topics include (not limited to) database environment, database development, relational database management systems, SQL/NoSQL data management language, data normalization, data warehousing, and internet database environment. Credit will not be given for both DATX 5801 and CSIS 3722.

Prereq.: Junior standing or higher and GPA of 2.5 or higher.

DATX 5803 Data Visualization 3 s.h.

Data visualization refers to the graphical representation of information revealed through data analysis. With the assistance of various visualization elements, we can present data in a clear and effective manner. More importantly, turning data into impactful images, we are able to gain valuable insights and intelligence that help improve our decision-making processes. This course introduces students to various types of visualization techniques like charts, tables, graphs, maps, infographics and dashboards. It emphasizes applying appropriate visualization techniques in uncovering information from data. Moreover, it will help students develop skills of data storytelling, i.e. effectively communicating actionable insights through the combination of data visualization and narratives.

Prereq.: Junior standing or higher and GPA of 2.5 or higher.

DATX 5805 Predictive Modeling Algorithms 3 s.h.

Predictive modeling (also referred to predictive analytics and machine learning) applies statistical techniques in analyzing data to predict outcomes. Through a hands-on approach, this course helps students develop basic skills in predictive analytics. Topics may include (not limited to) k-nearest neighbors, naïve-Bayes, linear and logistic regression models, time-series models, classification and regression trees, Principle Component/Factor Analysis, non-linear models, neural networks, random forests, and cluster analysis among others.

Prereq.: Junior standing or higher and GPA of 2.5 or higher.

DATX 5895 Selected Topics in Data Analytics 1-3 s.h.

The study of a topic in data analytics in depth or the development of a special area of data analytics. May be repeated with permission of the instructor.

Prereq.: Permission of the instructor.

DATX 5896 Data Analytics Project 3 s.h.

Individual research project culminating in a written report or paper utilizing predictive modeling techniques, visualization, and data management techniques. May be repeated with permission of instructor.

Prereq.: Permission of instructor.

Coreq.: DATX 5895.