Data Science and Analysis BS, Economics Emphasis

General Education Requirements
Students must satisfy the university general education requirements. Many of the courses for the degree may be used to fulfill math proficiency, information literacy, social science, and math and life/natural sciences requirements. The program recommends students take ENGL 3130 Technical Writing or ENGL 3120 Business Writing to satisfy the Junior-Level Writing requirement. Emphasis areas may require one of these courses. There is no foreign language requirement for the degree.

Satisfactory/Unsatisfactory Option
Courses required for the major may not be taken on a satisfactory/unsatisfactory basis.

Degree Requirements
The BS in Data Science and Analysis consists of a set of core courses along with an emphasis area. Students must earn a minimum grade of C- in all core courses and emphasis area courses.

Core Courses

Calculus Course
MATH 1800 Analytic Geometry and Calculus I 3-5
or MATH 1100 Basic Calculus

Statistics Course
The Introduction to Statistics course should align with the student's Discipline Emphasis Area.

Choose one of the following:
SOC 3220 Quantitative Data Analysis in Social Science Research
BIOL 4122 Biostatistics
ECON 3100 Economic Data and Statistics
CRIMIN 2220 Statistical Analysis in Criminology and Criminal Justice
MATH 1320 Introduction to Probability and Statistics
PSYCH 2201 Psychological Statistics
POL SCI 3000 Political Analysis
SCMA 3300 Business Analytics and Statistics

Additional Required Courses
MATH 4005 Exploratory Data Analysis with R 3
CMP SCI 1250 Introduction to Computing 3
CMP SCI 4200 Python for Scientific Computing and Data Science 3
CMP SCI 4342 or MATH 4250 Introduction to Data Mining 2 3

Total Hours 18-20

Emphasis Area Requirements

ECON 1001 Principles of Microeconomics (MOTR ECON 102) 3
ECON 1002 Principles of Macroeconomics (MOTR ECON 101) 3
ECON 4100 Introduction to Econometrics 4
ECON 4110 Applied Econometrics 4
ECON 4120 Time Series Econometrics for Economics and Finance or ECON 4130 Business and Economic Forecasting

Choose one of the following: 3-4
ECON 4040 Booms and Busts in the Economy: Data and Theory
ECON 4120 Time Series Econometrics for Economics and Finance (if not used above)
ECON 4130 Business and Economic Forecasting (if not used above)
ECON 4160 Geospatial Analysis in the Social Sciences

Total Hours 21-22

Learning Outcomes
Upon completion of the program, graduates will be able to:

• Apply knowledge of statistical data collection, analysis and quantitative modeling techniques
• Demonstrate proficiency in industry-standard programming languages that support data acquisition, retrieval and analysis
• Select, apply and build data-based models and visualizations to devise solutions to data science problems
• Effectively communicate technical results and recommendations in various formats to appropriate audiences
• Use economic reasoning to construct models to analyze economic phenomena and evaluate public policy at the micro and macro levels
• Use mathematical models to construct and analyze economic behavior
• Apply statistical concepts and data science methods to analyze real-world problems in economics

First Year

Fall
INTDSC 1003 1
CMP SCI 1250 3
ENGL 1100 3
MATH 1030 3
GEN ED CORE: Communication Proficiency 3

Spring
ECON 1001 3
MATH 1800 5
GEN ED CORE: Communication Proficiency 3
GEN ED CORE: US History and Government 3
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Total Hours: 120