Data Science and Analysis BS, Social Science 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.

Core 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/ANTHRO 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 Introduction to Data Mining 3

Total Hours 18-20

Emphasis Area Requirements
Choose two of the following. Courses must be from at least two subject areas:

- ANTHRO 1005 Introduction to Human Evolution
- ANTHRO 1011 Introduction to Cultural Anthropology (MOTR ANTH 201)
- ANTHRO 1019 Introduction to Archaeology
- CRIMIN 1100 Introduction to Criminology and Criminal Justice
- CRIMIN 1110 Theories of Crime
- POL SCI 1100 Introduction to American Politics (MOTR POSC 101)
- POL SCI 1500 Introduction to Comparative Politics (MOTR POSC 202)
- POL SCI 1800 Introduction to International Politics (MOTR POSC 201)
- PSYCH 1003 General Psychology (MOTR PSYC 100)
- SOC 1010 Introduction to Sociology (MOTR SOCI 101)
- SOC 2280 Technology and Society

Choose one of the following:
- CRIMIN 2210 Research Methods in Criminology and Criminal Justice
- POL SCI 3000 Political Analysis
- PSYCH 2219 Research Methods in Psychological Science

Choose three of the following. Courses must be from two subject areas:
- ANTHRO 4310 Laboratory Methods in Archaeology
- COMM 3150 Crisis, Disaster, and Risk Communication
- COMM 4100 Communication Campaigns
- POL SCI 3330 Public Opinion and Political Participation
- POL SCI 4040 Survey Research Practicum in Political Science
- PSYCH 3318 Industrial and Organizational Psychology
- PSYCH 4365 Psychological Testing and Assessment
- SOC 3344 Problems of Urban Community
- SOC 3501 Social Mapping for Change
- SOC 4040 Survey Research Practicum for Sociology

Total Hours 18

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

1 Students interested in the Computer Science emphasis area, the Mathematics Emphasis Area, or in taking additional mathematics courses should take MATH 1800.
• 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
• Identify and apply appropriate social theories to understand social phenomena
• Critically evaluate explanations of human behavior and social phenomena
• Apply statistical concepts and data science methods to analyze real-world problems in communications, political science, sociology, or psychology