Data Science and Analysis BS, Biology 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. 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
MATH 1320  Introduction to Probability and Statistics

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

MATH 4005  Exploratory Data Analysis with R
3
CMP SCI 1250  Introduction to Computing
3

Total Hours 18-20

1 Students interested in the Computer Science emphasis area, the Mathematics Emphasis Area, or in taking additional mathematics courses should take MATH 1800.

Emphasis Area Requirements
BIOL 1821  Introductory Biology: Organisms and the Environment (MOTR BIOL 150L) 5

BIOL 1831  Introductory Biology: From Molecules to Organisms (MOTR BIOL 150L) 5

Total Hours 25

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
• Demonstrate an understanding of the fundamental principles of biology including the structure and functions of cells and their components, heredity and variation in populations, and evolution
• Apply statistical concepts and data science methods to analyze real-world problems in biology