Data Science and Analytics, B.S.

Program Description

The Bachelor of Science with a major in Data Science and Analytics will provide a student with foundational mathematical, statistical, and computational knowledge, skills, and methodologies within the context of the ethical and professional standards of Data Science. A student will also complete at least 16 hours of courses in either a domain of expertise in data science and analytics or a minor to provide them a context in which to apply their data science abilities. Thus, the degree will enable the student to either begin a career in industry, government, or community and non-profit organizations in a range of domains, or pursue graduate study.

Students will begin the program by building a foundation in mathematics, statistics, computer programming, and algorithmic techniques. They will then take 38 credit hours of data science core courses covering the fundamentals of data science, programming, machine learning, data mining, data science ethics, and communication. After completing the core, students will complete 6 credit hours of elective courses in data science and statistical learning. Students will also be required to take at least 16 hours in a suitable domain knowledge concentration to begin exploring an expert area of application. The program will conclude with a required data science capstone course, in which the student will demonstrate overall knowledge of the discipline by completing a data science project, incorporating all the knowledge learned in the courses.

 This program is a part of the College of Computing and Software Engineering.

Admission, Enrollment, and Graduation Policies

Admission Requirements

This program does not have specific admission requirements and only Admissions to Kennesaw State University is required. For more information, please visit the Admissions section of the Catalog.

Graduation Requirements

Each student is expected to meet the requirements outlined in Academic Policies: 5.0 PROGRAM REQUIREMENTS & GRADUATION.

Program Course Requirements

Core IMPACTS Curriculum (42 Credit Hours)
General Education Core IMPACTS Curriculum

Core IMPACTS Curriculum Requirements Specific to this Major
Science Majors: Must take MATH 1113 or higher in Mathematics & Quantitative Skills and MATH 1179 or higher in Applied Math.

Science and Engineering Majors: Must take two four-hour laboratory sciences in Natural Sciences. Students must choose from CHEM 1211/1211L , CHEM 1212/1212L , PHYS 1111/PHYS 1111L*, PHYS 1112/1112L , PHYS 2211/2211L*, PHYS 2212/2212L , BIOL 1107/1107L , or BIOL 1108/1108L .

*Students cannot take both PHYS 1111/L and PHYS 2211/L nor PHYS 1112/L and PHYS 2212/L.

Core Field of Study (18 Credit Hours)
Students must earn a grade of "C" or better in these courses.

- MATH 2202: Calculus II
- CSE 2300: Discrete Structures for Computing
  or
- MATH 2345: Discrete Mathematics
- STAT 1401: Elementary Statistics
  or
- STAT 2332: Probability and Data Analysis
- CSE 1321: Programming and Problem Solving I
- CSE 1321L: Programming and Problem Solving I Laboratory
- CSE 1322: Programming and Problem Solving II
- CSE 1322L: Programming and Problem Solving II Laboratory

Major Requirements (38 Credit Hours)
Students must earn a grade of "C" or better in these courses.

- DATA 3010: Computer Applications of Statistics
- STAT 3120: Statistical Methods I
  or
- STAT 3125: Biostatistics
- STAT 3130: Statistical Methods II
- DATA 3230: Data Visualization

- MATH 3260: Linear Algebra I
- DATA 3300: Data Science Ethics
- CSE 3153: Database Systems
  or
- CS 3410: Introduction to Database Systems
- DATA 4000: Data Science Communication
- DATA 4030: Programming in R
  or
- DATA 4140: Python for Data Science
- STAT 4210: Applied Regression Analysis
- DATA 4310: Statistical Data Mining
- DATA 4990: Data Science Capstone
  One (1) credit hour carried over from Applied Math.
  One (1) credit hour carried over from Natural Sciences.

Major Electives (6 Credit Hours)
Students must earn a grade of "C" or better in these courses. Select six credit hours from the following list of courses:

- DATA 3396: Cooperative Study
- DATA 3398: Internship
- STAT 4025: Clinical Trial Design
- DATA 4030: Programming in R
- STAT 4120: Applied Experimental Design
- STAT 4125: Analysis of Human Studies
- DATA 4330: Applied Binary Classification
- DATA 4400: Directed Study
- DATA 4490: Special Topics in Statistics
- DATA 4140: Python for Data Science
- CSE 4983: CSE Computing Internship

University Electives (16 Credit Hours)
In accordance with KSU Graduation Policy, students must earn a grade of "D" or better in these courses while maintaining a minimum 2.00 cumulative GPA.

Free Electives (16 Credit Hours)
Select 16 credit hours of 1000-4000 level coursework from the University Catalog. Students are

encouraged to take courses that focus on a particular domain with data science applications. These hours can also be used to earn a minor in another discipline.

Program Total (120 Credit Hours)