PAUL QUINN

DATA SCIENCE

The B.A. in Data Science at Paul Quinn College

The mission of the Paul Quinn College Data Science major is to develop professionals with the interdisciplinary computer science, statistical, mathematical and problem-solving skills needed to generate insights, identify ethical solutions and effectively communicate innovative solutions for various industries and entrepreneurial opportunities.

A graduate of the B.S. in Data Science will be able to demonstrate the following at a highly proficient level:

1. Ethical behavior in accessing data and in data-driven decision making
2. Demonstration of skill acquisition through credentialing and creation of plan for life-long learning
3. Demonstration of proficiency in key computer programming languages and applications:
   a. Python, R, SQL
   b. Tableau, SAS/SPSS, other proprietary app/software, Matlab
   c. Julia, Scala, Spark
   d. Rapid Miner, machine learning studio, Data Robot
   e. Java
4. Solve complex problems using statistical experiential design
5. Create a Data Science Business Plan and present details to Data Science Stakeholders
6. Utilize effective communication strategies, both verbal and written, to communicate to multiple audiences with various needs
7. Evaluate situations to select the appropriate interdisciplinary skill or tool in math, computer science, statistics, or data analysis, to problem solve
8. Apply data science strategies to effective workplace engagement via internship and co-op placement

Students who major in Data Science will complete the General Education Core Curriculum and the subsequent Major Requirements for a total of 121 credit hours, as follows:

General Education Core Curriculum (63 hours)
PHYS   1411 General Physics I (p)
PHYS   1412 General Physics II (p)
COMM 1311 Intro to Public Speaking
ENGL   1301 Composition I (d)*
ENGL   1302 Composition II (p)*
GOVT 2206 Texas Government
GOVT 2301 American Government
I HIST   2301 US History I
HIST   2302 US History II
HUMA 1315 Art Appreciation **OR**
ECON 2304 Economics of Culture and Work
MATH 2310 Pre-Calculus
SOCI   2301 Introduction to Sociology (preferred)
ENTR   2301 Principles of Entrepreneurship
ECON 2302 Principles of Microeconomics
FINA   1101 Personal Finance
FUND 1303 Intro to Quinnite Servant Leadership
MATH 2342 Statistics for Data Science

MATH   2411 Calculus I (p)
RELI   1301 Introduction to Christian Ethics
SPAN   1301 Elementary Spanish I **OR**
SPAN   2301 Spanish for Native Speakers I
SPAN   1302 Elementary Spanish II (p) **OR**
SPAN   2302 Spanish for Native Speakers II (p)

Lower-Level Major Requirements (25 hours)
COSC 3300 Data Science
MATH 3300 Advanced Statistics I
MATH 2411 Calculus II
COSC 2311 Algorithms & Logic for Computer Programming
MATH 2305 Discrete Math
COSC 4998 Data Science Internship I
COSC 4499 Data Science Internship II

Upper-Level Major Requirements (24 hours)
COSC 3302 Data Visualization
COSC 3303 Data Storage & Processing
BUSA 4301 Technical Writing/Business
         Communications
COSC 3305 Exploration of Domain Knowledge in
         Data Science
COSC 3301 Data Science Research Methods
COSC 4308 Advanced Computer Programming
COSC 4309 Data Modeling, Storage and
         Processing
COSC 4306 Machine Learning

Data Science Electives (9 hours)
BUSA 4231 Business Ethics & Social
         Responsibility
COSC 4302 Sociology Data
COSC 4303 Working with Digital Data
COSC 4304 Data Communication Acumen
COSC 4305 Data Analysis

Additional requirements for graduating with any Paul Quinn degree include earning one PQCX certificate for each year a student is enrolled, formal reflection on experiential learning in the PQ Work Program, and a complete business plan.

This outline is just a guide. The current PQC Academic Catalogue includes more details about these requirements, including additional substation options, course descriptions, and prerequisites.