CAREER PATHWAYS

Data Science Pathway

Core Courses

Splunk Core User |
72 hours

CompTIA Security+ |
72 hours

Total Data Science Pathway Clock Hours | 144

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EXCELLENCE
THROUGH
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Program Prerequisites

High School Diploma and Basic computer knowledge

Program Goal

The extraordinary spread of computers and online data is forever changing the way decisions are made in many fields, from medicine to marketing to scientific research. Dramatic growth in the scale and complexity of data that can be collected and analyzed is affecting all aspects of work and society including health care, business practices, public safety, scientific discoveries, and public policy.

Understanding effective and ethical ways of using vast amounts of data is a significant challenge to science and to society as a whole. Developing scalable techniques for data analysis and decision making requires interdisciplinary research in many areas, including machine learning, algorithms, statistics, operations research, databases, complexity, analysis, visualization, and privacy and security. Through a unique combination of interdisciplinary coursework and cutting-edge research, the program will enable students to apply techniques and tools of data science to applications drawing on appropriate and relevant concepts and models from the engineering, natural or social sciences.

Educational Objectives

The Data Science program is designed to train students to become tomorrow's leaders in this rapidly growing area. During the course of this program, the student will be able to:

- Define key concepts and models relevant to data science, including data integration, data intensive distributed computing and data visualization.
- Design and implement the core algorithms underlying an end-to-end data science workflow
- Evaluate the data collection by using mining, analysis, and presentation of information derived from large datasets.
- Create a competitive advantage from both structured and unstructured data
- Predict outcomes with supervised machine learning techniques
- Unearth patterns in customer behavior with unsupervised techniques
- Work with Splunk and Tableau to analyze and portray machine data in easy-to-use dashboards

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Learning Outcomes

Upon completion of this program, the graduate will be able to:

- Perform big data administration tasks for IT lifecycle phases like staging and production.
- Monitor agentless, network and scripted inputs to fine tune them.
- Parse data based on requirements after manipulating the collected raw data.
- Apply data science best practices, including a facility with modern tools like Splunk and Tableau
- Construct data analysis and report findings by building interactive dashboards.
- Work with R and RHadoop to analyze structured, unstructured, and big data.
- Develop reliable security architecture to keep the data safe.

Professional Objectives

- Data Scientist
- Data Analyst
- Data Architect
- Data Engineer
- Data Statistician
- Business Analyst
- Big Data Engineer

- Big Data Specialist
- Data Analytics Specialist
- Director, Big Data Analytics & Segmentation
- Business Intelligence Manager
- Business Intelligence Consultant

Core Courses

- DEV 1003 Splunk Core User | 72 hours
- ISA 1002 CompTIA Security+ | 72 hours
- **Total Data Science Pathway Clock Hours | 144**

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State Council of
Higher Education for Virginia

EXCELLENCE THROUGH EDUCATION

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