

## **Master of Science (M.S.) in Data Analytics Program Guide 2025-2026**



**Department of Engineering  
College of Engineering and Technology**

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Are you ready to take your skills to the next level and unlock the power of data? The Master of Science (M.S.) in Data Analytics at Virginia State University prepares you to tackle some of the most pressing challenges in industries like healthcare, finance, technology, and beyond. Whether you're looking to drive innovation in a major tech firm or help an organization make more data-driven decisions, this program will equip you with the expertise to make an impact.

## **Program Overview**

At VSU, we believe that data has the power to change the world. Our interdisciplinary M.S. in Data Analytics program is designed to provide you with cutting-edge tools, a robust theoretical foundation, and the practical skills needed to succeed in an ever-evolving field. Learn from expert faculty, work with industry partners, and get hands-on experience that will make you career-ready from day one.

Whether you choose the Thesis Option for an in-depth research experience or the Non-Thesis Project Option to work on a real-world data challenge, you will gain the technical proficiency to address complex business problems and make data-driven decisions that shape the future.

## **Admission Requirements**

In addition to the Graduate Office admission requirements, criteria for non-conditional admission to the program will be set by the Departmental Computer Science Graduate Committee. Any student failing to maintain a 3.0 cumulative grade point average (GPA) in a 4.0 scale will be on academic probation for one semester. If the student's cumulative average does not return to 3.0 at the end of the probation semester, the student will be required to leave the program.

## **Program Requirements**

The Master of Science degree requires 30 graduate credit hours of course work including a thesis or 33 graduate credit hours of course work including a project. The program is intended to satisfy the need to train professionals with expertise using modern computing tools and cutting-edge technology as well as practical knowledge of theoretical computer science. Students will focus on such areas as data mining, scientific computing, data visualization, or state-of-the-art graphics and animation technologies. Undergraduates are prepared to learn to use the latest advanced applications, while graduates are highly-trained professionals ready to begin work using such applications. There are two options for completing the Master's Degree in Computer Science: Thesis and Non-thesis.

### The Thesis Option

1. Twenty-four (27) credit hours of course work (6 core courses and any 3 courses from set of predetermine electives); and
2. Six credit hours of thesis work:

Courses	Credit Hours
6 Core Courses	18
3 Restricted Electives Courses	9
Thesis I & II (DAAN 600 and DAAN 601)	6
<b>Total</b>	<b>33</b>

### The Non-thesis Option

- Twenty-seven credit hours of course work (6 core courses and any 3 courses from set of predetermine electives)
- A Master's project (DAAN 605: Graduate Data Analytics Project)

Courses	Credit Hours
6 Core Courses	18
3 Restricted Electives Courses	9
Project (DAAN 605)	3
<b>Total</b>	<b>30</b>

Core courses will teach you fundamental concepts in data mining, machine learning, data visualization, and business analytics, while elective courses give you the flexibility to specialize in areas like big data and predictive analytics.

### Core Courses (18 credit hours):

- DAAN 500: Advanced Programming for Data Analytics (3 credits)
- DAAN 510: Data Analytics I (3 credits)
- DAAN 511: Data Analytics II (3 credits)
- DAAN 520: Advanced Information Visualization (3 credits)
- DAAN 530: Ethics in Data Analytics (3 credits)
- STAT 562: Mathematical Statistics (3 credits)

## **Restricted Elective Courses (9 credit hours):**

Students will select 9 credit hours from the list of courses. Selected coursework must be approved by an advisor.

- DAAN 545: Big Data Analytics (3 credits)
- DAAN 560: Sport Data Analytics (3 credits)
- DAAN 562: Financial Analytics (3 credits)
- DAAN 640: Special Topics in Data Analytics (3 credits)
- CSCI 503: Introduction to Machine Learning (3 credits)
- CSCI 602: Advanced Artificial Intelligence (3 credits)
- CSCI 695: Data Mining (3 credits)
- CSCI 810: Machine Learning with Big Data (3 credits)
- CSCI 830: Introduction to Blockchain (3 credits)
- STAT 601: Introduction to Predictive Analytics (3 credits)
- STAT 610: Bayesian Statistics (3 credits)

## **Prerequisite Knowledge**

To succeed in the M.S. in Data Analytics program, students should have a solid foundation in mathematics and programming. If you're new to these areas, we recommend taking introductory courses in Python, R, and Statistics prior to applying.

## **Career Services & Support**

As part of the M.S. in Data Analytics program, you'll have access to a range of career services including:

- Industry internships and networking events
- Resume building workshops and LinkedIn profile reviews
- Connections to top employers in technology, healthcare, and finance

Our faculty and staff work closely with students to ensure they're prepared for success in the job market.

## Inside the M.S. in Data Analytics Experience

**Software and Tools Used:** Students will become proficient in tools such as:

- Python, R, and SQL for programming and data manipulation
- Tableau, Power BI for visualization
- Hadoop, Spark for handling big data
- Jupyter Notebooks, Google Colab for interactive coding and collaboration

### Thesis vs. Non-Thesis Options:

Students have the flexibility to choose between the Thesis Option or the Non-Thesis Project Option based on their career goals. The Thesis Option is ideal for those who wish to pursue research, while the Non-Thesis Option offers the opportunity to apply data analytics skills in real-world scenarios.

### Faculty Involvement in Projects:

Throughout the program, students will benefit from the expertise and guidance of faculty members who are actively engaged in data analytics research. Whether you choose to work on a thesis or a project, faculty will mentor you through the process, providing real-world insights and academic rigor.

### Assessment and Evaluation:

The program uses a mix of project-based assessments, assignments, and exams. Core courses require students to complete final projects that showcase their ability to apply the concepts learned, while elective courses offer opportunities for deep dives into specialized areas.

### Ready to Transform Your Career?

If you're passionate about data and ready to make an impact, the M.S. in Data Analytics program at Virginia State University is the place for you. Apply today to begin your journey in data analytics and take the first step toward a rewarding career. [Click here to apply.](#)

### Contact:

**Dr. Pamela Lee-Mack**  
**Program Director for the M.S. in Data Analytics**

Department of Engineering  
College of Engineering and Technology  
Virginia State University  
Petersburg, Virginia 23806  
Email: [pleigh-mack@vsu.edu](mailto:pleigh-mack@vsu.edu)  
Phone: (804) 542-1088