

MASTER OF SCIENCE IN DATA SCIENCE AND AI

The Master of Science in Data Science and AI (MS-DSAI) program offers an applied graduate education grounded in the foundations of data science, machine learning, and AI. The program prepares students not only to analyze and interpret complex data, but to build, deploy, and responsibly govern machine learning and AI systems in practice. The program is a deliberate curricular sequence which moves from mathematical and statistical foundations, programming, and data visualization through machine learning, generative AI, databases, and cloud computing. Cloud platforms and AI tools are integrated throughout the curriculum. Students complete a capstone project in which their skills are applied to a substantial, real-world data problem.

The Master of Science in Data Science and AI degree is granted to students who satisfactorily complete a minimum of 30 semester credit hours of required coursework in the School of Interdisciplinary Data Science, College of Natural Sciences and Mathematics. Applicants should have a foundation in mathematics (calculus, linear algebra, probability/statistics) and programming proficiency in at least one language, such as Python, R, or C++.

Code	Title	Hours
DATA 5300	Introduction to Data Science	3
DATA 5310	Mathematical and Statistical Foundations for Data Science	3
DATA 5320	Programming for Data Science	3
DATA 5330	Data Analytics and Visualization	3
DATA 5340	Machine Learning for Data Science	3
DATA 5410	Generative AI for Data Science	3
DATA 5420	Data Ethics and Professional Practice	3
DATA 5430	Databases and SQL for Data Science	3
DATA 5440	Big Data Systems and Cloud Computing	3
DATA 6900	Data Science Capstone	3
Total Hours		30

First Year

First Term		Hours
DATA 5300	Introduction to Data Science	3
DATA 5310	Mathematical and Statistical Foundations for Data Science	3
Hours		6

Second Term

DATA 5320	Programming for Data Science	3
DATA 5330	Data Analytics and Visualization	3
Hours		6

Third Term

DATA 5340	Machine Learning for Data Science	3
DATA 5410	Generative AI for Data Science	3
Hours		6

Second Year

First Term

DATA 5420	Data Ethics and Professional Practice	3
DATA 5430	Databases and SQL for Data Science	3
Hours		6

Second Term

DATA 5440	Big Data Systems and Cloud Computing	3
DATA 6900	Data Science Capstone	3
Hours		6
Total Hours		30

- Apply advanced mathematical, statistical, and computational methods to data analysis.
- Design, implement, and evaluate machine learning and AI systems.
- Work with large-scale, cloud-based, and distributed data platforms.
- Communicate data-driven insights to diverse audiences.
- Apply ethical principles, fairness, and governance in data science practice.