

HEALTH DATA SCIENCE (MS)

Contacts

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Program Website (<https://www.jefferson.edu/academics/colleges-schools-institutes/population-health/degrees-programs/health-data-science.html>)

Program Description

Health Data Science (previously known as Population Health Intelligence) is an ever-evolving multi-disciplinary field that involves using statistical inference, algorithmic development, and technology to make insights about data.

To uncover actionable insights, skilled healthcare data scientists are needed to:

- Combine large disparate data sources
- Build statistical and predictive models
- Create effective data visualizations
- Communicate findings to technical and non-technical audiences
- Acquire and provide data analytics leadership for their organizations

Master's Degree

The Master of Science (MS) builds upon the foundation concepts presented in the Graduate Certificate and focuses on the advanced application of HDS concepts necessary for the applied practice of health data science in industry and research settings. This option contains 10 online courses and a capstone project, which is specifically designed to enhance the student's career trajectory. This option can be completed in two years.

Two track options allow students to focus their studies in HDS:

Management Track

The Management Track prepares students to lead data science initiatives in their organizations (whether providers, payers, vendors, employers, consulting, or governmental agencies) of steadily increasing scope and importance. This track provides students with competencies in the latest HDS methods including statistics and predictive analytics, as well as the ability to interpret the results of, and gain insights on, data. These competencies provide graduates with the practical expertise to help improve the demonstrable quality, safety, and value of their organizations. It develops skills to plan and lead evidence-based practice implementations. This track targets students early in their careers who seek leading roles that require technical expertise, as well as more seasoned professionals (including clinicians) who aspire to become mission-critical chief analytics officers for their organizations.

Research Track

The Research Track will prepare students to conduct HDS research either academically or as a part of an organization. Students acquire competencies in data wrangling, statistical and predictive analytics, and the latest machine learning methods for work on real-world HDS projects. The targeted audience includes individuals who seek the

technical expertise to lead HDS research efforts with providers, payers, employers, data vendors, consulting, and governmental agencies.

Program Outcomes

The HDS program prepares graduates to be successful in the ever-changing healthcare environment that is driven by data and analytics by preparing them to:

Graduate Certificate

- Explores the vital roles of data, information, and information systems in the implementation and evaluation of healthcare and value-based care initiatives
- Provides a comprehensive overview of data science, the practice of obtaining, modeling and interpreting data
- Adopt data visualization techniques that contribute to effective presentations and dashboards
- Provides a foundation for population health beginning with a working definition, incorporating public health science and policy.

Master's Degree (Above Plus)

All Tracks

- Evaluate and apply multivariate statistical methodologies for various study designs of efficiency and effectiveness in healthcare

Management Track

- Apply management and leadership skills to data-driven decision-making and learn to communicate with technical and non-technical audiences
- Manage HDS projects in real-world healthcare settings
- Addresses implementation science and presents a multidisciplinary framework and methodology to promote the integration of scientific evidence into healthcare practice, policy and research

Research Track

- Learn key programming techniques for data wrangling, statistical modeling and predictive analytics
- Learn advanced data science methods including supervised and unsupervised learning algorithms
- Conduct HDS research in real-world healthcare settings

Management Track

Curriculum: 2 Years

Code	Title	Credits
Master of Science		
Graduate Certificate courses plus:		
AHE 505	Statistics II	3
AHE 509	Epi & Evidnc Outcomes Research	3
HDS 538	Implementation Science	3
HDS 527	Analytics Leadership	3
HDS 652	Strat Capstone Portfolio&Pres	3
Elective in HDS or AHE (PD Approval)		3
Total Credits		18

Research Track

Curriculum: 2 Years

Code	Title	Credits
Master of Science		
Graduate Certificate courses plus:		
AHE 505	Statistics II	3
HDS 500	Fundamentals of Data Wrangling	3
HDS 502	Advanced Data Analysis	3
HDS 519	Data Science II	3
Elective in HDS or AHE (PD Approval)		3
HDS 651	Capstone Research Project	3
Total Credits		18

Both tracks culminate in a Capstone Project, which incorporates knowledge and skills gained through the Master's Program education. The Capstone should advance knowledge which can be applied to the student's discipline and/or organization.