



SCHOOL OF HEALTH AND HUMAN SERVICES

# MASTER OF SCIENCE IN HEALTH & LIFE SCIENCE ANALYTICS

## Use Data to Resolve Healthcare’s Persistent Problems

A Master of Science in Health and Life Science Analytics will ground you in sound statistical methods and prepare you for a career in health analytics and the pharmaceutical industry. Through practical experience, you’ll apply those methods to solve everyday health and life science analytics problems drawing on valid public and private data sources. You’ll gain proficiency in areas like analytical and predictive modeling, data acquisition, data mining, and healthcare information management systems. You’ll also explore epidemiology, health management, clinical research, clinical trials, health outcomes research, and learn to use modern analytical software. Working with a team, you’ll develop the skills to design, coordinate, conduct, and publicize an analytic strategy for structuring a current healthcare issue and solution.

Program highlights:

- Entire program can be completed online
- Combine components of data analytics to produce solutions
- Use advanced statistical and data programming techniques to solve practical problems
- Design an analytic strategy to structure a problem and solution
- Integrate data and analytics in a health setting to produce useful intelligence
- Study the distribution and causes of disease and health
- Examine the planning, organization, administration, and policies of healthcare organizations
- Use data findings to establish financial priorities of a healthcare organization

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## MASTER OF SCIENCE IN HEALTH & LIFE SCIENCE ANALYTICS

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The Master of Science in Health & Life Science Analytics program is designed to provide students with a practical learning experience through application of statistical methods to solve real-life health and life science analytics problems. The goal of this program is to prepare students for careers in health analytics and the pharmaceutical industry.

To address the spectrum of issues in health and life science analytics, this curriculum has been designed to include specialized courses in analytic topics relative to the health and clinical fields. Topics include analytical and predictive modeling, data acquisition, data mining, health care information management systems, epidemiology, health management, clinical research, clinical trials, health outcomes research, teamwork, and communication. State-of-the-art analytical software, such as SAS, will be used in all courses so that students completing the MS degree will also be well prepared for external certification. Additionally, team projects are conducted using real data from sponsoring organizations or publicly available data.

Previous academic or industrial experience in such areas as statistics, computer programming, engineering, epidemiology, healthcare, clinical trials, or science are helpful prerequisites for this MS program. This degree is appropriate for both experienced professionals as well as recent college graduates.

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Integrate components of data analytics to produce knowledge-based solutions for real-world challenges using public and private data sources.
- Evaluate data management methods and technologies used to improve integrated use of data.
- Construct data files using advanced statistical and data programming techniques to solve practical problems in data analytics.
- Design an analytic strategy to frame a potential issue and solution relevant to the community and stakeholders.
- Evaluate health data management technologies through integration and interoperability of health data.
- Synthesize data analytics and data in a health setting to produce actionable information.
- Analyze the distribution and determinants of disease and health outcomes in human populations.
- Analyze the planning, organization, administration and policies of healthcare organizations using health analytic methods.
- Integrate data and analytic techniques to establish financial priorities of a healthcare organization in line with the needs and values of the community and stakeholders it serves.
- Develop team skills to design, coordinate, conduct, and disseminate an analytic strategy to frame a relevant healthcare issue and solution.

### Degree Requirements

To obtain the Master of Science in Health & Life Science Analytics, students must complete at least 58.5 graduate units. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another institution, as it applies to this degree, and provided the units were not used to earn another advanced degree. Please refer to the General Catalog section on graduate admissions requirements for specific information regarding application and evaluation.

### Core Requirements

(13 courses; 58.5 quarter units)

BAN 600	Fundamentals of Analytics
ANA 605	Analytic Models & Data Systems <i>Prerequisite: BAN 600</i>
ANA 610	Data Management for Analytics
ANA 615	Data Mining Techniques
ANA 620	Continuous Data Methods, Appl. <i>Prerequisite: ANA 615</i>
ANA 625	Categorical Data Methods, Appl. <i>Prerequisite: ANA 620</i>
ANA 630	Advanced Analytic Applications <i>Prerequisite: ANA 625</i>
HCA 626	Healthcare Information Systems <i>Prerequisite: HCA 620</i>
COH 606	Epidemiology <i>Prerequisite: COH 602</i>

ANH 604	Clinical Research Analytics
ANH 607	Health Outcomes Research <i>Prerequisite: ANH 604</i>
ANA 699A	Analytic Capstone Project I <i>Prerequisite: All core and specialization courses in an analytics program with a minimum GPA of 3.0 or approval of Lead Faculty.</i>
ANA 699B	Analytic Capstone Project II <i>Prerequisite: ANA 699A</i>