

HEALTH MANAGEMENT & POLICY (HMP)

The Department of Health Management and Policy prepares students for a wide range of professional careers within the healthcare and public health fields, such as the Master of Science in Health Data Science, the Graduate Certificate in Health Data Science¹, the Master of Public Health and the Graduate Certificate in Public Health². Students have up to three years to complete their degree. Through rich classroom experience, hands-on learning and opportunities to engage in research and community outreach, our graduates go on to work in settings that include complex health systems, government, non-profit, finance, public health and health data science.

¹*Beginning in the 2023-2024 academic year, the Master of Science in Health Data Science program is pausing admissions to the program. Current students will continue to have access to the same high-quality education and resources until they graduate.*

²*The Public Health (MPH), and Public Health Certificate programs are pausing admissions to the program for the 2024-2025 academic year. Current students will continue to have access to the same high-quality education and resources until they graduate*

<https://chhs.unh.edu/health-management-policy>

Programs

- [Health Data Science \(M.S.\)](#)
- [Health Data Science \(Graduate Certificate\)](#)

Courses

HMP 933 - Quality and Process Improvement in Healthcare

Credits: 3

This course introduces analytics tools to improve healthcare quality and processes. Topics include quality measures and indicators, project and change management, six sigma components, and lean. A majority of the course will focus on using data relevant tools, and techniques for each of the six-sigma phases: Define, Measure, Analyze, Improve, and Control (DMAIC). Define and measure phases start with a review of probability and distribution rules and various descriptive analytics tools. These phases also include development and application of process maps, flow charts, Pareto charts, relationship matrix, and written procedures. Analyze phase includes hypothesis testing and design of experiments. Improve and control phases include root cause analysis, statistical process control, and lean tools.

Equivalent(s): NURS 933

Grade Mode: Letter Grading

HDS 801 - The U.S. Healthcare System

Credits: 3

Focuses on the organization, financing, and delivery of healthcare in the U.S. Contrasts the private and public sectors and examines the effects of market competition and government regulation. Examines the ways that medical providers are paid, and explores the major issues currently facing physicians, hospitals, and the pharmaceutical industry. Discusses several potential small-scale and large-scale reforms to the healthcare system and evaluates their likely effects on healthcare spending, quality of care, and access to care.

Equivalent(s): ADMN 801

Grade Mode: Letter Grading

HDS 802 - Programming in Healthcare Environments

Credits: 3

This course covers using Python as a programming language to write, implement, and design programs that are relevant to various aspects of programming in a health setting. After completion of this course, students should be comfortable with the basic data structures in Python and R (including arrays, dictionaries, and dataframes), conditional logic and iterators, writing Python and R functions, and using Python libraries to read external data and perform data manipulations and data analysis.

Grade Mode: Letter Grading

HDS 803 - Translation of Health Data

Credits: 3

This course will give you the skills you need to leverage data to reveal valuable insights and advance your career. This course teaches you the visualization skills necessary to be effective Data Storytellers which helps engage your audience in a story about the data. This course focuses on concepts as well as hands-on experience of presenting data from initial concepts to final presentation by creating meaningful displays of quantitative and qualitative data to facilitate peer/managerial decision making.

Prerequisite(s): HDS 801 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 804 - Health Data Systems

Credits: 3

In this course, students will learn the landscape of data used in healthcare settings, engage in active case applications and case studies, and propose a decision support system improvement. It examines modern decision support systems, types of applications, both mobile and web based, enterprise versus cloud-based systems. Specifically examined will be the Electronic Health Record (EHR) and other clinical and administrative information systems. Also examined will be interoperability and regulatory requirements.

Prerequisite(s): HDS 801 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 805 - Applied Machine Learning in Healthcare**Credits:** 3

This course covers the foundations of machine learning in healthcare systems including algorithms related to classification and regression prediction in supervised setting, clustering and dimension reduction in an unsupervised setting. Topics include data preprocessing and classification techniques such as logistic regression, support vector machines, KNN, Naïve Bayes', ensemble methods such as random forests, boosted trees, XGBoost, dimension reduction techniques such as principal components analysis, t-distributed stochastic neighborhood embedding, ISOMAP, locally linear embedding, UMAP, multidimensional scaling.

Prerequisite(s): HDS 800 with a minimum grade of B- and HDS 801 with a minimum grade of B- and HDS 802 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 806 - Outcomes Research**Credits:** 3

This course examines the evidence developed through the lens of outcomes research relative to clinical care and public/population health initiatives. It explores the development of study design, developing a workable research question and associated proposed study methods. The course explores frequently used study designs, techniques for evaluating/selecting health outcomes measures, and analytical approaches appropriate to conducting health outcomes research. Students will construct an independent research protocol, which will be developed in increments as course evolves.

Prerequisite(s): HDS 804 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 807 - Unstructured Health Data**Credits:** 3

This course covers the essential unstructured data formats, storage platforms and methods of retrieving and analyzing such data in the healthcare system. Specifically, the course will cover electronics health records, patient health portals, telemedicine videos, ICU sensor data, genomic data, biomedical literature, social media data, biomedical image data and physician notes.

Prerequisite(s): HDS 805 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 808 - The Successful Healthcare Project**Credits:** 3

This course supports the design and initiation of the Practicum Health Data Science project required for completion of the Master of Health Data Science program. Students may elect to enroll in this course before beginning the practicum or concurrently with the practicum. The course covers definition of a high value research topic, development of a project plan and project launch. Students will complete key project milestones including negotiation of a project charter, development of an approved analysis plan, and demonstrate access to required data.

Prerequisite(s): HDS 800 with a minimum grade of B- and HDS 801 with a minimum grade of B- and HDS 802 with a minimum grade of B- and HDS 803 with a minimum grade of B-.

Grade Mode: Letter Grading

HDS 890 - HDS Independent Study**Credits:** 3-6

This course will be designed by the student and the instructor. Course topics and deliverables will be established together and approved by the supervising faculty. Credit hours (not to exceed 6-credit hours) will be determined by the supervising faculty based on the size and scope of the student's intended project.

Grade Mode: Letter Grading

HMP 933 - Quality and Process Improvement in Healthcare**Credits:** 3

This course introduces analytics tools to improve healthcare quality and processes. Topics include quality measures and indicators, project and change management, six sigma components, and lean. A majority of the course will focus on using data relevant tools, and techniques for each of the six-sigma phases: Define, Measure, Analyze, Improve, and Control (DMAIC). Define and measure phases start with a review of probability and distribution rules and various descriptive analytics tools. These phases also include development and application of process maps, flow charts, Pareto charts, relationship matrix, and written procedures. Analyze phase includes hypothesis testing and design of experiments. Improve and control phases include root cause analysis, statistical process control, and lean tools.

Equivalent(s): NURS 933

Grade Mode: Letter Grading

Faculty

Health Management and Policy Department Faculty