

HEALTHCARE DATA SCIENCE

SPS Certificate website: <https://sps.northwestern.edu/program-search/certificates.php>

Healthcare Data Science and AI, Advanced Graduate Certificate

The continued explosive growth of health data has created great opportunities to improve the quality and delivery of patient care and a great need for professionals with the knowledge and skills to retrieve, interpret, and act on that data. Occupational data across several job categories show continued projected growth in healthcare data science-related jobs at anywhere from 10% to nearly 20% over the next 10 years, well above national averages.

This graduate certificate provides foundational data science skills (R and Python programming, statistical analysis, data modeling) that are increasingly essential for many industries, but also adds exposure to and practice with the unique complexities of health data and the care that must be taken in handling them. Courses in statistical analysis and predictive modeling provide hands-on experience analyzing real health data sets, which are often messy and unstructured, while courses in data visualization and healthcare data science leadership emphasize how to effectively communicate analytics insights to stakeholders across an organization.

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- Healthcare Data Science and AI, Advanced Graduate Certificate (<https://catalogs.northwestern.edu/sps/certificates/graduate/healthcare-data-science/healthcare-data-science-and-ai-advanced-graduate-certificate20/>)
- Healthcare Data Science, Graduate Certificate (<https://catalogs.northwestern.edu/sps/certificates/graduate/healthcare-data-science/healthcare-data-science-graduate-certificate/>)

MHDS 403-DL	Introduction to U.S. Healthcare, Digital Health & Analytics
MHDS 405-DL	Data Literacy and Analytics in Healthcare
MHDS 407-DL	Data Governance, AI Ethics & Cybersecurity
MHDS 409-DL	Foundations of Health Statistics and Data Exploration
MHDS 410-DL	Predictive Modeling and Statistical Inference in Healthcare
MHDS 412-DL	Feature Engineering and Unstructured Data
MHDS 422-DL	Practical Machine Learning and AI in Healthcare
MHDS 426-DL	Applications of AI in Healthcare
MHDS 427-DL	Enabling AI: Cloud Platforms, Data Architecture, and Scalable Systems
MHDS 428-DL	Digital Twin Intelligence in Healthcare: Foundations, Agents, and Strategy
MHDS 455-DL	Data Visualization and Storytelling
MHDS 480-DL	Healthcare Strategy, Operations, and AI Leadership
MHDS 498-DL	Capstone

Course

MHDS 401-DL

Title

Foundation of Healthcare Programming with Python and R