# Master of Science in Health Data Science

College of Population Health



### **Presentation Overview**

- Program Description
- Plan of Study
- Careers
- Professional Associations
- Student Profile
- Faculty Profile



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## What is Health Data Science?

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.









## What is Health Data Science?

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





## Health Data Science Tracks

- The Management Track will prepare students to manage HDS projects and research in the industry. It will provide students with competencies in HDS data, statistics, predictive analytics, and the ability to interpret the results and gain insights on data. It will expose students to the current software in HDS. The target audience will include individuals who wish to start a career in the healthcare industry and individuals in healthcare who want to expand or advance their career.
- The Research Track will prepare students to conduct HDS research. It will provide students with the strong data wrangling, statistical, and predictive analytics competencies to work on HDS projects. The targeted audience will include individuals who want to perform HDS research in industry.

#### PLAN OF STUDY

### **Graduate Certificate**

AHE 501: Economics of Health Insurance or POP 500: Essentials of Population Health
AHE 502: Statistics I
HDS 501: Health Informatics & Analytics
HDS 518: Data Science I
HDS 532: Data Visualization



#### Master's - Management

AHE 501: Economics of Health Insurance or POP 500: Essentials of Population Health AHE 502: Statistics I

HDS 501: Health Informatics & Analytics

HDS 518: Data Science I

HDS 532: Data Visualization

AHE 505: Statistics II

AHE 509: Epidemiology & Evidence for Outcomes Research

HDS 538: Implementation Science

HDS 527: Analytics Leadership

Elective in HDS or AHE

HDS 652: Strategic Capstone Portfolio & Presentation



#### Master's - Research

AHE 501: Economics of Health Insurance or POP 500: Essentials of Population Health AHE 502: Statistics I HDS 501: Health Informatics & Analytics HDS 518: Data Science I HDS 532: Data Visualization AHE 505: Statistics II HDS 500: Intro to Data Management HDS 502: Advanced Data Analysis HDS 519: Data Science II Elective in HDS or AHE HDS 651 Capstone Research Project



#### JOB TITLE

### Data Scientist

#### OUTLOOK

 Data Scientist is one of the most in-demand jobs within healthcare. Since 2016, there has been an 878% growth in healthcare data -- more than manufacturing, financial services or media industries<sup>1</sup>. Healthcare has a need for people with skills in predictive and statistical modeling, and who can wrangle data. Per the <u>Bureau of Labor</u> <u>Statistics</u>, the median data scientist salary in the United States is \$118,370.





https://healthitanalytics.com/news/understanding-the-many-vs-of-healthcare-big-data-analytics

#### American Statistical Association (ASA)

ASA's membership exceeds 19,000 professionals in academia, government, research, and business in statistics and data science. It consists of more than 70 chapters, nearly 30 sections, 17 journals, and six yearly conferences. The ASA aims to facilitate collaboration between statisticians and data scientists and enable them to achieve more than they could on their own.

### Healthcare Information and Management Systems Society (HIMSS)

Healthcare Information and Management Systems Society, Inc. (HIMSS) is a global advisor and thought leader supporting the transformation of the health ecosystem through information and technology.

#### AcademyHealth

AcademyHealth improves health and health care for all by advancing evidence to inform policy and practice

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#### STUDENT PROFILE



### David Aksim

Landenberg, PA CLASS OF 2021

"I think I would best be able to work in the population health space by getting formalized instruction. Almost all of my BI skills have been learned on the job, so I am also looking forward to taking classes on turning data into information - this is what I do every day.

"What has most exceeded my expectations has been the quality of my classmates. They have been a great mix of well-accomplished professionals and academicians, sharing insights, relevant details from their own careers, and support. Each class becomes its own interdisciplinary team with synergistic effects that leaves everyone having learned more.

"Even if you are a seasoned professional, prepare for Health Data Science to broaden and deepen your perspective beyond what you have experienced so far."



#### Johnathon "Kyle" Armstrong, PhD, MS Lecturer

PhD, FLORIDA STATE UNIVERISTY MS, FLORIDA STATE UNIVERISTY

Johnathon "Kyle" Armstrong is a Senior Research Scientist at Independence Blue Cross. At Independence Blue Cross, Dr. Armstrong researches and develops topics in data science ranging from feature engineering to state-of-the-art machine learning algorithms.

Dr. Armstrong has an extensive background in analytics, including a doctoral degree in Mathematics from Florida State University encompassing linear algebra, topology, graph theory, and combinatorics.

COURSES

HDS-518 DATA SCIENCE I

#### FACULTY PROFILE



James B. Couch, JD, MD, FACPE

JD, INDIANA UNIVERSITY MD, UNIVERSITY OF PENNSYLVANIA

Dr. Couch has almost 40 years of accomplishments in healthcare delivery and management with an emphasis on evaluating and managing health IT systems to improve the demonstrable quality, safety and value of health care delivery. His work in value-based purchasing, and what is now called accountable care, dates to the 1980s.

COURSES

PHI-527 ANALYTICS LEADERSHIP

#### ALUMNI PROFILE



### Connor T. Skeehan, MS

SENIOR BUSINESS INTELLIGENCE DEVELOPER, TRINITY LIFE SCIENCES Ardmore, PA (current) CLASS OF 2021

"As a Business Intelligence Developer working for a life sciences organization, the Health Data Science program has given me the opportunity to expand my expertise in working with health data to improve the lives of patients. I hope to use the statistics, data science, and data analysis skills I've learned in the program to interpret the vast amount of data that we're starting to see in the healthcare industry. Interpreting and analyzing this data in an intelligent way can unlock actionable methods through which we can affect positive change for patients across the U.S."

#### ALUMNI PROFILE



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### Irshad A. Siddiqui, MD

CHIEF INFORMATION OFFICER, BLESSING HEALTH SYSTEM Quincy, IL (current) CLASS OF 2021

"I was inspired to join Jefferson College of Population Health after listening to various talks and lectures by Drs David Nash and Stephen Klasko. I knew that there was something unique and innovative happening at Jefferson Health. And the college was the best place for me to learn these concepts.

The decision exceeded my expectations in terms of learning outcomes. The faculty focused on real-world experiential learning. I can proudly say that I have applied every concept I learned during my two years of Masters in Health Data Science into my daily work already (except for Blockchain in healthcare, which I may get to very soon).

Students should expect a very hands-on experiential learning environment with learning material from credible industry sources, not just academia. Be willing and ready to share your real-life experiences on the lively discussion boards. You will learn as much from the co-students as from the faculty. Good luck with your learning journey!"



### Admissions

April Smith, Admissions Manager Email Address: april.smith@jefferson.edu

### **Financial Aid**

jefferson.edu/tuition-and-financial-aid.html Email Address: Financial.Aid@Jefferson.edu







# Jefferson

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