

Degree Requirements 2020–2021

Jefferson College of Population Health

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APPLIED HEALTH ECONOMICS & OUTCOMES RESEARCH

Overview

The [Applied Health Economics & Outcomes Research \(AHEOR\)](#) program is an online program that meets the growing need for professionals to evaluate and measure health outcomes (both physical and humanistic), and to ascertain economic consequences of healthcare interventions by determining optimal clinical effectiveness, comparative effectiveness and economic value. Graduates are in a position to become national leaders in applied health economics and to influence decision-making through the application of established scientific methods to the allocation of healthcare resources. A Graduate Certificate in AHEOR and a Master of Science in AHEOR (MS-AHEOR) are available.

Competencies

Graduates of the graduate certificate program are able to:

- Compare historical trends to current issues in U.S. healthcare organization, delivery and financing.
- Explore the impact of government policies on health insurance products
- Examine the strengths and weaknesses of research design and statistical methods in evaluating product or service efficacy.
- Discuss the key concepts and applications of simulations and quantitative modeling in economic evaluations in health care.

Graduates of the master's degree program are able to achieve the above competencies plus:

- Apply analytic methods (e.g., burden of illness, evidence evaluation, statistics and research design, financial impact, cost-effectiveness, and decision analysis) to inform resource allocation, relative value assessments and policy initiatives.
- Interpret and apply conceptual frameworks used in HEOR, such as economic metrics (e.g., cost-effectiveness), quality of life evaluations (e.g., utilities and patient-reported outcomes) and healthcare technology assessment evaluations from an international perspective (e.g., budget impact analysis, guidelines, formularies, and utilization incentives and disincentives).
- Conduct and manage HEOR projects in real-world healthcare settings
- Communicate policy implications to various stakeholders and decision makers that reflect AHEOR concepts and techniques.
- Assume leadership roles in the decision process regarding the allocation of healthcare resources.

Curriculum

The Graduate Certificate in AHEOR requires completion of 15 credits or 5 courses. The MS-AHEOR degree requires completion of 33 credits, comprised of 10 courses and a Capstone Project that is presented on the Jefferson campus to peers and faculty following completion of coursework. All courses taken for the graduate certificate can be applied toward the MS-AHEOR. Students can complete the graduate certificate in one to two years and the master's degree in two to four years, depending on their pace through the program and the time it takes to complete the Capstone Project.

There are two track options for the MS-AHEOR degree allowing students to focus their studies in AHEOR. The **industry track** will prepare students to manage HEOR research in the industry (e.g., Pharma, Insurance, Payers). It will provide students with information on up-to-date HEOR tools, competencies in HEOR analysis and interpretation, as well as applicability and meaningfulness of HEOR evidence. The **research track** will prepare students to conduct HEOR research. It will provide students with strong analytical and statistical competencies.

Industry Track

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 501	Economics of Health Insurance (3)	
AHE 502	Statistics I (3)	Online Module
AHE 504	Economic Modeling 1 (3)	
AHE 506	Subjective Outcomes in Health Evaluation (3)	
AHE 509	Epidemiology & Evidence for Outcomes Research (3)	
AHE 505	Statistics II (3)	AHE 502
AHE 510	Advanced Research Methods for Applied Observational Studies (3)	AHE 502
AHE 512	Economic Modeling II (3)	AHE 504
AHE 507	Claims-Based AHEOR (3)	
AHE 508	International Health Technology Assessment: Evaluations & Evidence Generations/Synthesis (3)	AHE 506, AHE 509, AHE 510, AHE 512
AHE 652	Strategic Capstone Portfolio & Presentation (3)	Completion of all courses
Bolded courses are graduate certificate requirements		

Research Track

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 501	Economics of Health Insurance (3)	
AHE 502	Statistics I (3)	Online Module
AHE 504	Economic Modeling 1 (3)	
AHE 506	Subjective Outcomes in Health Evaluation (3)	
AHE 509	Epidemiology & Evidence for Outcomes Research (3)	
AHE 505	Statistics II (3)	AHE 502
AHE 510	Advanced Research Methods for Applied Observational Studies (3)	AHE 502

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 512	Economic Modeling II (3)	AHE 504
HDS 500	Intro to Data Management (3)	AHE 502
HDS 502	Advanced Data Analysis (3)	HDS 500
AHE 652	Capstone Research Project (3)	Completion of all courses
Bolded courses are graduate certificate requirements		

HEALTH DATA SCIENCE

Overview

Health Data Science is an ever-evolving multi-disciplinary field that involves using statistical inference, algorithmic development, and technology to make insights about data. The Health Data Science program prepares graduates to be successful in the ever-changing healthcare environment that is driven by data and analytics. 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. 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.

Competencies

Graduates of the graduate certificate program are able to:

- Explore 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

Graduates of the master's degree program will be able to achieve the above competencies 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

Curriculum

The MS-HDS requires completion of 33 credits, comprised of 10 courses and a Capstone Research Project for the Research Track or a Strategic Capstone Portfolio & Presentation for the Management Track. The final capstone is presented on campus to peers and faculty following completion of coursework. The Graduate Certificate in Health Data Science requires completion of 15 credits or 5 courses. All courses taken for the graduate certificate can be applied toward the masters. Students can complete the graduate certificate in one to two years and the master's degree in two to four years depending on their pace through the program and the time required to complete the Capstone course.

Management Track

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 501 or POP 500	AHE 501 Economics of Health Insurance (3) OR POP 500 Essentials of Population Health (3)	
AHE 502	Statistics I (3)	Online Module
HDS 501	Health Informatics & Analytics (3)	
HDS 518	Data Science I (3)	Online Module
HDS 532	Data Visualization (3)	
AHE 505	Statistics II (3)	AHE 502
AHE 509	Epidemiology & Evidence for Outcomes Research (3)	
HDS 538	Implementation Science (3)	
HDS 527	Analytics Leadership (3)	
Elective	HDS or AHE course (3)	
HDS 652	Strategic Capstone Portfolio & Presentation (3)	Completion of all courses
Bolded courses are graduate certificate requirements.		

Research Track

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 501 or POP 500	AHE 501 Economics of Health Insurance (3) OR POP 500 Essentials of Population Health (3)	
AHE 502	Statistics I (3)	Online Module
HDS 501	Health Informatics & Analytics (3)	
HDS 518	Data Science I (3)	Online Module
HDS 532	Data Visualization (3)	

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
AHE 505	Statistics II (3)	AHE 502
HDS 500	Intro to Data Management (3)	AHE 502
HDS 502	Advanced Data Analysis (3)	HDS 500
HDS 519	Data Science II (3)	HDS 500, HDS 502, HDS 518
Elective	HDS or AHE course (3)	
HDS 651	Capstone Research Project	Completion of all courses
Bolded courses are graduate certificate requirements.		

HEALTH POLICY

Overview

The [Health Policy](#) program prepares graduates to assume policy analysis and advocacy roles in healthcare provider organizations, integrated healthcare delivery systems, government offices, academic institutions, health services research firms, pharmaceutical and medical device manufacturers and community-based or advocacy organizations. A Graduate Certificate in Health Policy and a Master of Science in Health Policy (MS-HP) are available. Graduates of the master's degree achieve deeper and more comprehensive proficiency in research methods and statistical techniques that support policy formulation and implementation.

Competencies

Graduates of the graduate certificate program are able to:

- Identify the key stakeholders involved in U.S. healthcare organization, delivery and financing, with a focus on policy-making bodies.
- Examine the influence of social, economic, behavioral and political factors on health outcomes.
- Explore the general theoretical principles of economics and their application in the healthcare sector.
- Assess the role of information systems and data analysis in the policy-making process.
- Examine the intersection of health law and the U.S. healthcare delivery system, particularly in regard to policy decisions and reimbursement.

Graduates of the master's degree program are able to achieve the above competencies plus:

- Apply analytical skills to identify problems, model solutions and predict outcomes.
- Construct system-wide approaches that consider market forces and multiple stakeholder positions in the development of actionable policy solutions.
- Design, conduct and evaluate health policy analyses and research.
- Select and integrate information systems and technology to support decision-making and workflow within and across healthcare settings.
- Apply advanced management and leadership skills to develop policies that manage costs of Healthcare and that improve access, quality and safety.

Curriculum

The MS-HP degree requires the completion of 33 credits, comprised of 10 courses and a Capstone Project that is presented on the Jefferson campus to peers and faculty following completion of coursework. The Graduate Certificate in Health Policy requires completion of 15 credits or 5 courses. All courses taken for the graduate certificate can be applied toward the masters. Students can complete the graduate certificate in one to two years and the master's degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
POP 500	Essentials of Population Health (3)	
HPL 500	U.S. Healthcare Organization & Delivery (3)	
HPL 504	Health Law & Regulatory Issues (3)	
HPL 505	Legislative, Executive & Regulatory Processes (3)	
HPL 506	Health Policy: Analysis & Development (3)	
HPL 511	Policy Approaches to Addressing Social Determinants of Health (3)	
HPL 512	Medicare & Medicaid (3)	
HPL 513	Effective Communication & Dissemination of Data (3)	
HPL 520	Fundamentals of Health Statistics (3)	
Elective	With approval (3)	
HPL 650	Capstone Seminar & Project (3)	Completion of all courses
Bolded courses are graduate certificate requirements		

Global Track:

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
POP 500	Essentials of Population Health (3)	
HPL 550	Comparative Health Systems (3)	
HPL 504	Health Law & Regulatory Issues (3)	
HPL 505	Legislative, Executive & Regulatory Processes (3)	
HPL 506	Health Policy: Analysis & Development (3)	
HPL 515	Refugee & Migrant Health (3)	
HPL 516	Delivering Health Services in Resource-limited Countries	
HPL 513	Effective Communication & Dissemination of Data (3)	
HPL 520	Fundamentals of Health Statistics (3)	
Global Elective	With approval (3)	
HPL 650	Capstone Seminar & Project (3)	Completion of all courses
Bolded courses are graduate certificate requirements		

HEALTHCARE QUALITY & SAFETY (HQS, HQSM, HQSi)

Overview

There is Master of Science and graduate certificate in [Healthcare Quality and Safety](#) with two tracks: *U.S. or International*. The Master of Science in HQSM (MS-HQSM) is designed for physician leaders with [American Association for Physician Leadership \(AAPL\)](#) preparation and/or healthcare executives with MBA/MHA education. The Graduate Certificate in HQSi and Master of Science in HQSi (MS-HQSi) are designed for employees at or fellows of [The International Society for Quality in Healthcare \(ISQua\)](#) and require completion of a prerequisite course. There are also options for an Advanced Practice Certificate (APC).

Competencies

Graduates of the graduate certificate programs are able to:

- Discuss approaches to change management, innovation theory and effectiveness through quality methodologies.
- Identify key socio-economic and cultural determinants of population health outcomes.
- Develop HQS project management skills.
- Explore the evolution of HQS conceptual frameworks, design, measurements and policy.
- Identify current issues in healthcare organization, delivery and financing.

Graduates of the master's programs are able achieve the above competencies plus:

- Analyze the function and financing of HQS and the systems that deliver these services in the United States or in international settings.
- Identify, interpret and implement policies, care guidelines and regulations relevant to HQS.
- Apply quantitative and qualitative analytic skills to design, conduct and evaluate HQS measurement, improvement and research activities.
- Evaluate and apply technology and information systems that incorporate HQS to support decision-making and workflow within and across healthcare settings.
- Apply management and leadership skills to develop policies related to measurement and improvement of HQS.
- Produce evidence to support healthcare policy development and change.

Curriculum

HQS

The MS-HQS requires completion of 33 credits (10 courses and a Capstone Project). There are two tracks—*U.S. track* or *International track*—in the master’s program. A Graduate Certificate in HQS (15 credits) is available and all courses taken for the graduate certificate can be applied toward the MS-HQS. The graduate certificate is also available in both a *U.S. track* and *International track*. Students can complete the graduate certificate in one to two years and the master’s degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	U.S. Healthcare Organization & Delivery (3) <i>U.S. track</i>	
HPL 550	Comparative Health Systems (3) <i>International track</i>	
HQS 500	Introduction to Healthcare Quality & Safety (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
Elective	With approval (3)	
OPX 520	Change Management (3)	
HPL 520	Fundamentals of Practice-Based Statistics (3)	
HQS 512	Business Case for Quality (3)	
HQS 505	Advanced Applications of HQS in Clinical Settings (3)	
HQS 507	Advanced Application of HQS in Clinical Settings (3)	All other course work
HQS 650	Capstone Seminar & Project (3)	Completion of all coursework

Bolded courses are graduate certificate requirements.

HQSM

Students in the MS-HQSM program are required to complete AAPL online trainings or have MBA/MHA education prior to admission. The MS-HQSM requires completion of 27 credits (8 courses and a Capstone Project). The Capstone Project is presented on the Jefferson campus or appropriate AAPL venue to peers and faculty following completion of coursework. A Graduate Certificate in HQSM is not available. Students can complete the master’s degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 520	Fundamentals of Health Statistics (3)	
HQS 500	Introduction to Healthcare Quality & Safety (3)	

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HQS 505	Advanced Tools & Methods for HQS (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
OPX 520	Change Management (3)	
HQS 512	Business Case for Quality	
HQS 507	Advanced Application of HQS in Clinical Settings (3)	All other course work
HQS 650	Capstone Seminar and Project* (3)	Completion of all coursework
* Can be taken concurrently with permission.		

HQSi

Students in the MS-HQSi program are required to be employees at or fellows of ISQua and complete the online trainings prior to admission. The MS-HQSi requires completion of 33 credits (10 courses and a Capstone Project). A Graduate Certificate in HQSi (15 credits) is available and all courses taken for the graduate certificate can be applied toward the MS-HQSi. Students can complete the graduate certificate in one to two years and the master's degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 550	Comparative Health Systems (3)	
HQS 500	Introduction to Healthcare Quality & Safety¹ (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
Elective	With approval (3)	
OPX 520	Change Management	
HQS 512	Business Case for Quality (3)	
HPL 520	Fundamentals of Health Statistics (3)	
HQS 505	Advanced Tools & Methods for HQS (3)	
HQS 507	Advanced HQS Tools & Methods in Clinical Settings (3)	
HQS 650	Capstone Seminar & Project (3)	Completion of all coursework
Bolded courses are graduate certificate requirements. ¹ Will be waived for ISQua Fellows who take the pre-requisite course.		

Advanced Practice Certificate (APC) – Healthcare Quality & Safety

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HQS 500	Introduction to Healthcare Quality & Safety (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	

Advanced Practice Certificate (APC) – Healthcare Quality & Safety Education

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
HQS 516	Teaching Quality & Safety (3)	

Advanced Practice Certificate (APC) – Health Systems Science

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	US Healthcare Organization & Delivery (3)	
HQS 500	Introduction to Healthcare Quality & Safety (3)	
Elective	With Approval (3)	

Advanced Practice Certificate (APC) – Health Systems Science Education

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	US Healthcare Organization & Delivery (3)	
Elective	With Approval (3)	
HQS 517	Teaching Health Systems Science (3)	

OPERATIONAL EXCELLENCE

Overview

Operational Excellence (OpX) is the academic and professional field focused on developing and implementing evidence-based performance improvement methodologies needed to promote value and efficiency in healthcare. OpX professionals lead healthcare transformation by focusing on eliminating waste and improving system performance.

Competencies

Graduates of the graduate certificate program are able to:

- Apply the foundational concepts of quality and safety measurement, improvement and analysis
- Utilize project management tools and framework to design and implement improvement projects
- Distinguish the various evaluation methods used to externally and internally assess a healthcare organization's performance
- Identify and evaluate appropriate healthcare situations to utilize operational excellence tools

Graduates of the master's programs are able achieve the above competencies plus:

- Evaluate the effectiveness of various performance improvement evaluation approaches as well as improvement interventions
- Integrate quality, safety and transformation/change management tools to promote quality, safety, and process efficiency
- Design and implement operational excellence tools and strategies at a system level
- Develop systematic approaches to drive broad-impacting improvements across a healthcare organization

Curriculum

The MS-OPX degree requires the completion of 33 credits, comprised of 10 courses and a Capstone Project that is presented on the Jefferson campus to peers and faculty following completion of coursework. The Graduate Certificate Operational Excellence requires completion of 15 credits or 5 courses. All courses taken for the graduate certificate can be applied toward the masters. Students can complete the graduate certificate in one to two years and the master's degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	U.S. Healthcare Organization & Delivery (3)	
HQS 500	Introduction to Healthcare Quality & Safety (3)	
OPX 520	Change Management (3)	
OPX 532	Project Management Essentials (3)	
OPX 525	Executing Lean Thinking (3)	
OPX 531	Evaluating Healthcare Quality & Safety (3)	
OPX 535	Strategic Execution (3)	
Elective	With approval (3)	
HPL 520	Fundamentals of Practice Based Statistics	
HQS 512	Business Case for Quality	
OPX 650	Capstone Seminar & Project (3)	Completion of all courses*
Bolded courses are graduate certificate requirements		

Advanced Practice Certificate (APC) – Operational Excellence

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HQS 500	Introduction to Healthcare Quality & Safety (3)	
OPX 520	Change Management (3)	
OPX 532	Project Management Essentials (3)	

Advanced Practice Certificate (APC) – Operational Excellence Education

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
OPX 520	Change Management (3)	
OPX 532	Project Management Essentials (3)	
OPX 516	Teaching Operational Excellence (3)	

POPULATION HEALTH

Overview

The [Population Health](#) program offers additional skills required for leadership positions—healthcare policy development, epidemiology, outcomes analysis, coalition building and stakeholder management. The Population Health program is designed for experienced health executives and practitioners. To be accepted into the program, applicants must have a strong foundation and at least three to five years of experience in one or more key sectors of the healthcare or public health system. A Graduate Certificate in Population Health and a Master of Science in Population Health (MS-PopH) are available as well as two Advanced Practice Certificates (APC).

Competencies

Graduates of the graduate certificate program are able to:

- Define population health and describe how public health resources can align to address social determinants of health in order to improve health care outcomes.
- Articulate U.S. Healthcare organization and delivery, and how it impacts strategy and operations for achieving value-based care.
- Articulate new priorities in prevention, evidence-based practice, comparative effectiveness, public health and health policy established by the population health framework.
- Incorporate principles of healthcare quality and safety to improve the care of patients and populations.
- Apply principals of economics, risk, and finance to the development and implementation of health care strategies.
- Articulate new approaches to managing costs, and to improving access, quality and safety.
- Assess and interpret healthcare policies, legal precedents, statutes, and regulations. (Science Track)
- Articulate how health information systems support and inform data analytics, decision-making and workflow within and across healthcare settings. (Management Track)
- Articulate the principles of population health applied to employee populations. (Population Health for Employers track)

Graduates of the Master of Science in Population Health Program are able to achieve the above competencies plus:

All Tracks:

- Apply quantitative and qualitative analytic skills to develop, implement, and evaluate programs that address population health issues at the institutional, community, regional, and national levels.
- Apply principles of change management to influence healthcare programs and outcomes effectively.

Science Track:

- Analyze the impact of socio-cultural factors on access to health care and adjust health promotions and interventions accordingly.
- Apply social, behavioral and organizational science to the diagnosis, development and implementation of organizational change.
- Participate in structured simulations that demonstrate the breadth of population health.

Management Track:

- Discuss and design clinical programs and initiatives that demonstrate understanding of social, clinical, and financial factors impacting population health.
- Organize and implement clinical programs while understanding the role of analytics and principles of implementation science. (Management track)
- Apply leadership strategies for effective change to clinical operations.

Population Health for Employers Track:

- Strategize and execute to maximize workforce health and wellness
- Understand the application of data science to maximize employee population health program benefits
- Focus on wellness, prevention, and chronic disease management for the workforce
- Prepare for the future by studying new models and how they can benefit employee health care

Curriculum

The MS-PopH requires completion of 33 credits, comprised of 10 courses and a Capstone project that is presented on campus (virtually or in-person) to peers and faculty following completion of coursework. The Graduate Certificate in Population Health requires completion of 15 credits or 5 courses. All courses taken for the graduate certificate can be applied toward the masters. Students can complete the graduate certificate in one to two years and the master's degree in two to four years depending on their pace through the program and the time required to complete the Capstone Project. There are three tracks within the MS-POP program: Population Health

Science, Population Health Management, and Population Health for Employers.

Population Health Science

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	U.S. Healthcare Organization & Delivery (3)	
HPL 504	Health Law & Regulatory Issues (3)	
HQS 500	Introduction to Healthcare Quality & Safety (3)	
POP 500	Essentials of Population Health (3)	
POP 510	Health Economics, Risk & Finance (3)	
AHE 509	Epidemiology & Evidence for Outcomes Research (3)	
HPL 506	Health Policy: Analysis & Advocacy (3)	
HDS 501	Health Informatics & Analytics (3)	
OPX 520	Change Management (3)	
Elective	With approval (3)	
POP 650	Capstone Seminar & Project (3)	Completion of all courses
See website for most up-to-date waiver information.		

Population Health Management

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
POP 500	Essentials of Population Health (3)	
POP 510	Health Economics, Risk & Finance (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HDS 501	Health Informatics & Analytics (3)	
HDS 538	Implementation Science (3)	
OPX 520	Change Management (3)	
POP 560	Population Health Strategy & Management Applications I (3)	POP 500
POP 561	Population Health Strategy & Management Applications II (3)	POP 560
OPX 530	Applied Leadership Strategies for Effective Change (3)	
Elective	With approval (3)	
POP 650	Capstone Seminar & Project (3)	Completion of all coursework
See website for most up-to-date waiver information		

Population Health for Employers

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	US Healthcare Organization & Delivery (3)	
POP 500	Essentials of Population Health (3)	
POP 510	Health Economics, Risk & Finance (3)	
HQS 500	Introduction to Healthcare Quality & Safety (3)	
POP 541	Population Health for Employers (3)	POP 500
POP 542	Population Health Analytics for Employers (3)	

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
POP 543	Wellness, Prevention, & Chronic Disease Management for Employers	
POP 544	New Models and Employee Health Care	
POP 545	Health Law & Regulatory Issues for Employers	
Elective	With approval (3)	
POP 650	Capstone Seminar & Project (3)	Completion of all coursework
See website for most up-to-date waiver information		

Advanced Practice Certificate (APC) – Population Health

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
HPL 500	US Healthcare Organization & Delivery (3)	
POP 500	Essentials of Population Health (3)	
POP 510	Health Economics, Risk, & Finance (3)	

Advanced Practice Certificate (APC) – Population Health Education

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
POP 500	Essentials of Population Health (3)	
POP 510	Health Economics, Risk, & Finance (3)	
POP 516	Teaching Population Health	

POPULATION HEALTH SCIENCE

Overview

The [Population Health Science](#) program is a hybrid doctoral (PhD) program. The doctoral program prepares leaders to analyze the determinants of health and to develop, implement and evaluate health interventions, policies and systems that improve the health and quality of life of populations. More specifically, the PhD program prepares leaders to be scholars, researchers, educators and practitioners in core aspects of population health. A master's degree or post-bachelor professional degree (e.g. PharmD, JD, MD) is required for entry into the PhD program. Certificate program graduates are not eligible for admission. Students in the Population Health Science program specialize in one of five areas: Applied Health Economics & Outcomes Research, Health Behavior Science, Health Data Science, Healthcare Quality & Safety, and Health Policy.

Competencies

Graduates of the PhD program are able to:

- Demonstrate advanced knowledge and application of population health frameworks and concepts.
- Apply knowledge of the structures, performance, quality, policy and environmental context of Healthcare to the formulation of solutions to and prevention of population health problems.
- Formulate population health research questions that are informed by relevant theoretical and conceptual models; systematic reviews of the literature; valid, reliable and generalizable data; and stakeholder needs.
- Select appropriate study designs to address specific population health research questions.
- Collect, analyze and/or interpret data obtained either prospectively (by survey, surveillance, qualitative or mixed methods) or retrospectively through existing public and private sources to identify determinants of health.
- Conduct ethical and responsible research in the design, implementation and dissemination of population health research through implementation of research protocols with standardized procedures.
- Apply appropriate design and analytic methods to clarify associations between variables and to identify causal inferences.
- Communicate findings and implications of population health science research through multiple modalities to academic, professional and lay audiences.

Curriculum

The PhD in Population Health Science requires a minimum of 62 credits, including the competency examination, dissertation proposal and dissertation. Courses are offered either in person or online.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
Core Coursework – Methods (12)		
PHS 605	Advanced Statistical Methods for Data Analysis (3)	PBH 504 or equivalent
PBH 606	Advanced Epidemiology (3)	PBH 506 or equivalent
AHE 509	Epidemiology & Evidence for Outcomes Research (3) <i>Required for AHEOR Specialization</i>	
PHS 615	Advanced Statistics for Population Health Science: Multi-Level Modeling (3)	PHS 605 or equivalent
PHS 650	Evaluative & Outcomes Research & Design (3)	
AHE 510	Econometric & Observational Methods (3) <i>AHEOR Specialization only</i>	
Core Coursework – Population Health Fundamentals (16)		
HPL 500	U.S. Healthcare Organization & Delivery (3)	
POP 500	Essentials of Population Health (3)	
AHE 501	Economics of Health Insurance (3)	
PBH 502	Society, Behavior & the Environment (3)	
PHS 602	Bioethics (1)	
PHS 620	Teaching & Learning Seminar (3)	
Integrative Research (4)		
PHS 700	Integrative Research Seminar (1)	
Mentored Research (3)		
PHS 660	Mentored Research Experience (1, 2, or 3)	Approval by Program Director
Specialization Coursework (15)		
<i>Applied Health Economics & Outcomes Research (AHEOR) Specialization Coursework</i>		
AHE 502	Statistics I (3)	Online Module
AHE 504	Economic Modeling in Healthcare I (3)	
AHE 505	Statistics II (3)	AHE 502
AHE 506	Subjective Outcomes in Health Evaluation (3)	
AHE 512	Economic Modeling II (3)	AHE 504
AHE 507	Claims-Based AHEOR (3)	
AHE 508	International Health Technology Assessment: Evaluations & Evidence Generations/Synthesis (3)	AHE 506, AHE 509, AHE 510, AHE 512
PHS 650	Evaluative & Outcomes Research & Design (3)	
HDS 500	Intro to Data Management (3)	AHE 502
HDS 502	Advanced Data Analysis (3)	HDS 500
<i>Health Behavior Science Specialization Coursework</i>		
PBH 512	Qualitative Research Methods (3)	
PBH 515	Cultural Humility & Competence (3)	
PBH 602	Advanced Social & Behavioral Theories & Interventions (3)	PBH 502

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
PHS 680	Advanced Analytic Methods for Health Behavior Science (3)	PBH 602 or PHS 605
PHS 710	Advanced Health Behavior Methods & Measurement (3)	PBH 602 or co-req
<i>Health Data Science Specialization Coursework</i>		
AHE 502	Statistics I (3)	Online Module
AHE 505	Statistics II (3)	AHE 502
HDS 500	Intro to Data Management (3)	AHE 502
HDS 502	Advanced Data Analysis (3)	HDS 500
HDS 532	Data Visualization (3)	
HDS 518	Data Science I (3)	Online Module
HDS 519	Data Science II (3)	HDS 500, HDS 502, HDS 518
<i>Health Policy Specialization Coursework</i>		
HPL 504	Health Law & Regulatory Issues	
HPL 505	Legislative, Executive & Regulatory Processes	
HPL 506	Health Policy: Analysis & Development	
HPL 511	Policy Approaches to Addressing Social Determinants of Health	
HPL 512	Medicare & Medicaid	
HPL 513	Effective communication & Dissemination of Data	
OPX 520/OPX 530	Change Management OR Applied Leadership Strategies for Effective Change	
HPL 550	Comparative Health Systems	
<i>Healthcare Quality & Safety Specialization Coursework</i>		
HQS 500	Introduction to Healthcare Quality & Safety (3)	
HQS 505	Advanced Tools & Methods for HQS (3)	
HQS 507	Advanced Applications of HQS in Clinical Settings (3)	HQS 500, HQS 505, HQS 509, HQS 515
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
HQS 512	Business Case for Quality (3)	
OPX 520	Change Management (3)	
Examination & Dissertation (min 12)		
PHS 800	Comprehensive Exam Prep (1)	
PHS 801	Comprehensive Exam (1)	PHS 800
PHS 805	Dissertation Proposal Seminar (3)	PHS 801, Advancement to Candidacy
PHS 807	Dissertation Proposal (1)*	PHS 805
PHS 810	Dissertation Progress (3)	PHS 807
PHS 811	Dissertation Progress (3)	PHS 810

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
PHS 812	Dissertation Progress (1)**	PHS 811
Bolded courses are within track requirements * up to 3 consecutive terms ** optional enrollment until Dissertation is successfully defended		

Comprehensive Examination

The Comprehensive Examination is composed of two parts:

- **Part I** is a written, open-book, non-monitored test consisting of several essays on key areas in population health
- **Part II** is a written, open-book, non-monitored research proposal

Students should adhere to the policies and procedures outlined in the PhD Comprehensive Examination and Dissertation Handbook.

Dissertation Proposal and Oral Defense

The Dissertation is the final degree requirement of the doctoral program. Students should adhere to the policies and procedures outlined in the PhD Comprehensive Examination and Dissertation Handbook.

PUBLIC HEALTH

Overview

The [Public Health](#) program is an onsite program. The public health program is the foundational academic program of the College. The comprehensive public health curriculum trains students to be practitioners in community, government, research, non-profit, and clinical settings. The program is committed to multi-disciplinary experiential education, research, practice, and service.



The Jefferson College of Population Health (JCPH) offers a **Master of Public Health (MPH)** degree, which is nationally accredited through the [Council on Education for Public Health \(CEPH\)](#). Students develop competencies in several key public health areas: health behavior and social sciences, biostatistics, environmental health, epidemiology, policy and advocacy, program planning, implementation and evaluation, and others. The interdisciplinary curriculum stresses leadership skills, systems thinking, health communication, global health, and cultural humility and competency. JCPH also offers a **Graduate Certificate in Public Health**, which provides students with the foundational knowledge and skills for public health practice

Students can complete the MPH in several ways:

- Accelerated– The Leaders in Evidence, Application & Prevention (LEAP) Pathway is an accelerated (one academic year) pathway for future healthcare professionals. All LEAP students enter the program in the fall (September) term and take courses on a full-time basis.
- Full-time/Part-time – The Leaders in Public Health Transformation (LPHT) Pathway is ideal for students planning to practice public health and take the lead in promoting health across siloes. LPHT students can enter the program in any term. Students on the LPHT pathway may be either full-time or part-time. Jefferson employees looking to enhance their skills and strengthen the human capital of the Jefferson Enterprise are designated as Jeff LPHT students.
- Dual Degree – Dual degree options allow students to apply coursework from other degree programs to the Jefferson MPH. Currently, the Public Health program offers several dual degrees, each with their own specific timeline.
- Advanced Standing - This pathway provides medical school graduates from an accredited MD or DO school with the opportunity to pursue an MPH. Students can earn a degree either on a full-time or part-time basis.

The Public Health program offers four engaging concentration options. Each concentration offers elective course options that address specific competencies. Students in each concentration take 6 elective courses. Students will work with their academic advisors to declare a concentration.

1. **Public Health Analytics** focuses on bolstering students' epidemiological and statistical expertise through advanced coursework giving students the ability to collect, analyze, interpret and visualize data.

2. **Public Health Policy & Advocacy** gives students the skillset to promote public health policy at the local, state, federal and international levels.
3. **Healthcare Quality & Safety** focuses on integrating public health knowledge and skills in the clinical space. This concentration is particularly of interest to students currently in or intending to enter the medical field.
4. The **Public Health Practice (Generalist)** concentration gives students the most freedom to choose electives that appeal to them. Academic advisors will support students in determining which electives support their career goals.

Competencies

The [Council on Education for Public Health](#) has identified the essential knowledge and skills needed in public health practice, education and research. The JCPH Public Health program uses these competencies to guide curriculum development and assess student learning. Every course in the program links these competencies to graded assignments allowing faculty and students to track progress. Students in the Public Health program will demonstrate attainment of the following competencies:

Public Health Knowledge

D1.1	Explain public health history, philosophy and values
D1.2	Identify the core functions of public health and the 10 Essential Services
D1.3	Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
D1.4	List major causes and trends of morbidity and mortality in the US or other community relevant to the College or public health program
D1.5	Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
D1.6	Explain the critical importance of evidence in advancing public health knowledge
D1.7	Explain effects of environmental factors on a population's health
D1.8	Explain biological and genetic factors that affect a population's health
D1.9	Explain behavioral and psychological factors that affect a population's health
D1.10	Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
D1.11	Explain how globalization affects global burdens of disease
D1.12	Explain an ecological perspective on the connections among human health, animal health and ecosystem health (eg, One Health)

Foundational Competencies

D2.1	Apply epidemiological methods to the breadth of settings and situations in public health practice
D2.2	Select quantitative and qualitative data collection methods appropriate for a given public health context
D2.3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
D2.4	Interpret results of data analysis for public health research, policy or practice

D2.5	Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings
D2.6	Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels
D2.7	Assess population needs, assets and capacities that affect communities' health
D2.8	Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
D2.9	Design a population-based policy, program, project or intervention
D2.10	Explain basic principles and tools of budget and resource management
D2.11	Select methods to evaluate public health programs
D2.12	Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
D2.13	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
D2.14	Advocate for political, social or economic policies and programs that will improve health in diverse populations
D2.15	Evaluate policies for their impact on public health and health equity
D2.16	Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making
D2.17	Apply negotiation and mediation skills to address organizational or community challenges
D2.18	Select communication strategies for different audiences and sectors
D2.19	Communicate audience-appropriate public health content, both in writing and through oral presentation
D2.20	Describe the importance of cultural competence in communicating public health content
D2.21	Perform effectively on interprofessional teams
D2.22	Apply systems thinking tools to a public health issue

Concentration-Specific Competencies

Students will attain additional competencies dependent on their declared concentration.

Curriculum

The public health program requires the completion of 45 credits including a Clerkship-Applied Practice Experience (C-APE) and Capstone-Integrative Learning Experience (C-ILE). A Graduate Certificate in Public Health (18 credits) is also available. Students earning a Graduate Certificate will identify six courses, three core and three other courses (elective or core), in consultation with the Program Director.

“Free Choice” electives may be any elective offered across all concentrations. For example, a student in the Public Health Analytics concentration takes 2 “free choice” electives in addition to the required concentration courses. The student may choose to take a law and ethics course from the Policy & Advocacy concentration and a global health course from the Public Health Practice (Generalist) concentration as the “free choice” electives.

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
CORE COURSES		
PBH 500	Foundations of the US Healthcare System (3)	
PBH 501	Foundations of Public Health (3)	
PBH 502	Society, Behavior & the Environment (3)	
PBH 504 Or PBH 505	Fundamentals of Statistics for Research (3) Fundamentals of Statistics for Practice (3)	
PBH 506	Fundamentals of Epidemiology (3)	
PBH 509	Foundations of Policy & Advocacy (3)	
PBH 510	Health Research Methods (3)	
PBH 520	Program Planning, Implementation & Evaluation (3)	
PBH 611 PBH 612	LEAP Integrative Learning Experience, Part 1 (2) and LEAP Integrative Learning Experience, Part 2 (1) <i>LEAP only</i>	PBH 510*
PBH 613 PBH 614	or LPHT Integrative Learning Experience, Part 1 (3) and LPHT Integrative Learning Experience, Part 2 (0) <i>LPHT only</i>	PBH 510*
PBH 651	Clerkship – Applied Practice Experience (C-APE) (0)	At least 16 credits
CONCENTRATIONS Additional courses may be taken as electives with permission		
Public Health Analytics (4 required concentrations courses + 2 “free choice” electives)		
PBH 512	Qualitative Research Methods (3)	
PBH 605	Advanced Statistical Methods for Data Analysis (3)	PBH 504
PBH 606	Advanced Epidemiology (3)	PBH 506
PBH 609	Geo-Based Information Systems (GIS) Mapping (3)	PBH 504*/505*, PBH 506*
Public Health Policy & Advocacy (4 required concentration courses + 2 “free choice” electives)		
PBH 507	Fundamentals of Environmental Health (3)	
PBH 513	Public Health Law & Ethics (3)	PBH 509
PBH 518	Applied Policy & Advocacy (3)	PBH 509
AHE 501	Economics of Health Insurance (3)	
Healthcare Quality & Safety (4 required concentration courses + 2 “free choice” electives)		
HQS 500	Introduction to Healthcare Quality & Safety (3)	
HQS 509	Applied Principles of Healthcare Quality (3)	
HQS 515	Applied Principles of Patient Safety (3)	
OPX 532	Project Management Essentials (3)	
Public Health Practice (Generalist) (6 “free choice” electives)		
PBH 508	Applied Toxicology (3)	

COURSE #	COURSE NAME (CREDITS)	PREREQUISITES
PBH 511	Health Communication	
PBH 514	Dimensions of Global Health (3)	
PBH 515	Cultural Humility & Competence (3)	
PBH 516	Human Rights of Immigrants, Refugees & Internally Displaced (3)	
PBH 550	Public Health and Clinical Practice (3)	
PBH 602	Advanced Social & Behavioral Theories & Interventions (3)	PBH 502
PBH 603	Substance Abuse as a Public Health Issue	
PBH 607	Infectious Disease Epidemiology (3)	PBH 506
<i>Other options available; students should consult their advisor</i>		
* Can be taken concurrently with permission		

Completion Timelines

COMPLETION TIMELINES	
LEAP Accelerated	Students complete all coursework, the C-APE and the C-ILE within one academic year.
Dual Degree	Completion timelines vary by program. Dual degree students will receive program-specific timelines from their academic advisor. <ul style="list-style-type: none"> • JD/MPH with the Delaware Law School at Widener University • MD/MPH with Sidney Kimmel Medical College • MPH/MPH with Geisinger Commonwealth School of Medicine • DO/MPH with the Philadelphia College of Osteopathic Medicine (PCOM) • PharmD/MPH with the Jefferson College of Pharmacy • MSS/MPH with the Graduate School of Social Work and the Social Research at Bryn Mawr College • PA/MPH with the Jefferson College of Health Professions, Department of Physician's Assistant
Full-Time LPHT	Students complete all coursework, including the C-APE and C-ILE, within two years
Part-Time LPHT	Students complete all coursework, including the C-APE and C-ILE, within five years.
Jeff LPHT	Students complete all coursework, including the C-APE and C-ILE, within five years.
Advanced Standing	Completion timelines vary. Students will receive personalized timelines from their academic advisor.

Interprofessional Activity

All students are required to participate in an interprofessional activity and write a reflection paper on their experiences. Students are encouraged to participate in a pre-approved activity, such as [Nexus Maximus](#) or any group activity provided by the [Jefferson Center for Interprofessional Education](#). Students may identify alternative interprofessional opportunities in the community and submit them for approval by the Assistant Program Director. To be approved, these opportunities must include a didactic portion and allow the student to actively participate in an interdisciplinary group activity. More information about this requirement is available in the [Clerkship –Applied Practice Experience Handbook](#).

Clerkship - Applied Practice Experience (C-APE)

MPH students should refer to the [Clerkship –Applied Practice Experience Handbook](#) for more information.