

Student Learning Outcomes and Competencies
Emphasis: Infectious Diseases and Zoonoses

The MPH Program is dedicated to assessment of student learning and to appropriate changes in curriculum and courses whenever necessary. At the completion of the degree, each student should be able to meet all the Graduate School’s Student Learning Outcomes (SLOs), the MPH SLOs, along with the MPH 12 Foundational Objectives and 22 Foundational Competencies in addition to the Emphasis Area Competencies. All courses taken for the degree are expected to meet at least one competency.

Kansas State University Graduate Student Learning Outcomes

Knowledge	Demonstrate [a] thorough understanding and/or competency in a specific area of emphasis, study, or profession.
Skills	Demonstrate the ability to apply knowledge through critical thinking, inquiry, analysis, and communication to solve problems and to produce scholarly and creative works including but not limited to design, art, performance, [and/or] original research in the form of [a] thesis or dissertation.
Attitudes and Professional Conduct	Exhibit an awareness of their responsibilities (professional integrity, ethical behavior, ability to work with diverse groups of peoples, etc.) and engage in professional conduct towards all constituent groups, including students, faculty, public, etc.

Public Health Core Courses Required of Each MPH Student

Area	Required Course
Biostatistics	MPH 701 – Fundamental Methods of Biostatistics (3 hrs)
Environmental Health	MPH 802 – Environmental Health (3 hrs)
Epidemiology	MPH 754 – Introduction to Epidemiology (3 hrs) OR MPH 708 – Veterinary Epidemiology (2 hrs) AND MPH 854 – Intermediate Epidemiology (3 hrs)
Health Services Administration	MPH 720 – Administration of Health Care Organizations (3 hrs)
Social and Behavioral Sciences	MPH 818 – Social and Behavioral Bases of Public Health
Public Health Practice	MPH 840 – Public Health Field Experience (6 hrs with no thesis or 3 hrs + 6 hrs thesis research)

The required courses listed above, cover the 12 Foundational Objectives and 22 Foundational Competencies needed by public health professionals listed below and on the next page.

12 Public Health Foundational Objectives	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
1. Explain public health history, philosophy and values		x	x		
2. Identify the core functions of public health and the 10 Essential Services		x			
3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population’s health	x	x	x		
4. List major causes and trends of morbidity and mortality in the US or other community relevant to the school or program		x	x		
5. Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.	x	x	x		
6. Explain the critical importance of evidence in advancing public health knowledge	x	x	x		
7. Explain effects of environmental factors on a population’s health	x			x	
8. Explain biological and genetic factors that affect a population’s health			x	x	
9. Explain behavioral and psychological factors that affect a population’s health	x	x			x
10. Explain the social, political and economic determinants of health and how they contribute to population health and health inequities					x
11. Explain how globalization affects global burdens of disease			x	x	
12. Explain an ecological perspective on the connections among human health, animal health and ecosystem health (e.g., One Health)				x	x

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context		x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
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					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x		x		x
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x		x	x
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations					x
15. Evaluate policies for their impact on public health and health equity		x		x	x
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue				x	

Student Accountability for 22 Foundational Competencies

Each student should document and address how five of the 22 MPH Foundational Competencies were attained and utilized during the APE. *One of the 22 must be #21. Perform effectively on interprofessional teams.* This explanation should be in the APE portfolio and oral presentation. These competencies are informed by the traditional public health core knowledge areas, (biostatistics, epidemiology, social and behavioral sciences, health services administration and environmental health sciences), as well as crosscutting and emerging public health areas.

In addition, each MPH emphasis area has its own set of unique competencies expected of students completing coursework in the emphasis area.

Infectious Diseases and Zoonoses Emphasis Area Competencies

IDZ Emphasis Area Competency	Description of Competency	Required Course
1 <i>Pathogens/pathogenic mechanisms</i>	Evaluate modes of disease causation of infectious agents.	BIOL 530 OR DMP 812
2 <i>Host response to pathogens/immunology</i>	Investigate the host immune response to infection.	BIOL 670 OR DMP 705
3 <i>Environmental/ecological influences</i>	Examine the influence of environmental and ecological forces on infectious diseases.	DMP 710
4 <i>Disease surveillance</i>	Analyze disease risk factors and select appropriate surveillance.	DMP 710
5 <i>Disease vectors</i>	Investigate the role of vectors, toxic plants and other toxins in infectious diseases.	DMP 710

Infectious Diseases and Zoonoses Required and Elective Courses

Prerequisite courses: Some courses listed may require prerequisites before being allowed to enroll in the course.

Requirements and Credit Hours			
Required courses 12 hours		BIOL 530 DMP 812	Pathogenic Microbiology (3 hrs) OR Veterinary Bacteriology and Mycology (4 hrs)
		BIOL 670 DMP 705	Immunology (4 hrs) OR Principles of Veterinary Immunology (3 hrs)
		DMP 710	Introduction to One Health (2 hrs)
		DMP 815	Multidisciplinary Thought and Presentation (3 hrs)
Elective Courses 9 hours			
AAI 801	Interdisciplinary Process (3 hrs)	DMP 855	Disease Detection, Surveillance and Risk Assessment (3 hrs)
ASI 540	Principles of Animal Disease Control (3 hrs)	DMP 860	Pathogenic Mechanisms (3 hrs) (alternate years)
BIOL 529	Fundamentals of Ecology (3 hrs)	DMP 871	Molecular Diagnostics of Infectious Diseases (3 hrs)
BIOL 545	Human Parasitology (3 hrs)	DMP 880	Problems in Pathobiology (1-6 hrs)
BIOL 546	Human Parasitology Laboratory (1 hr)	DMP 888	Globalization, Cooperation & the Food Trade (1 hr) (online)
BIOL 604	Biology of Fungi (3 hrs)	DMP 954	Advanced Epidemiology (4 hrs)
BIOL 671	Immunology Laboratory (2 hrs)	ENTOM 849	Biology of Disease Vectors (3 hrs)
BIOL 675	Genetics of Microorganisms (3 hrs)	FDSCI 690	Principles of HACCP (2 hrs) (online)
BIOL 687	Microbial Ecology (3 hrs)	FDSCI 730	Overview of Food Safety and Security (2 hrs)
BIOL 730	General Virology (3 hrs)	FDSCI 731	Food Protection and Defense - Essential Concepts (2 hrs) (online)
DMP 718	Veterinary Parasitology (4 hrs) (DVM only)	GEOG 508	Geographic Information Systems I (4 hrs)
DMP 753	Veterinary Public Health (2 hrs) (DVM only)	GEOG 608	Geographic Information Systems II (3 hrs) (prerequisite GEOG 508)
DMP 770	Emerging Diseases (3 hrs) (intersession)	MC 750	Strategic Health Communication (3 hrs) (alternate years)
DMP 801	Toxicology (2 hrs)	MC 760	Communication and Risk (3 hrs) (alternate years)
DMP 806	Environmental Toxicology (2 hrs)	STAT 705	Regression and Analysis of Variance (3 hrs)
DMP 816	Trade & Agricultural Health (2 hrs) (online)	STAT 716	Non-parametric Statistics (3 hrs)
DMP 822	Veterinary Virology (3 hrs)	STAT 717	Categorical Data Analysis (3 hrs)
DMP 830	Quantitative Analysis (3 hrs)	STAT 720	Design of Experiments (3 hrs)
DMP 844	Global Health Issues (3 hrs) (online)	STAT 730	Multivariate Statistics Methods (3 hrs)
DMP 850	Domestic Animal Immunology (3 hrs)	<i>Plus any graduate course approved by the graduate committee and the program director.</i>	
DMP 854	Intermediate Epidemiology (3 hrs)		

All MPH graduate students must maintain a GPA of 3.0 or above in ALL graduate course work to remain in good standing in the program and to graduate with an MPH degree. Detailed information concerning this requirement may be found on the Graduate School website: <http://www.k-state.edu/grad/>

MPH Culminating Experience has two requirements: Applied Practice Experience (APE) and Integrated Learning Experience (ILE)

The **Applied Practice Experience (APE)** requirement is 240 hours in a non-academic setting and is typically completed *at the end of the coursework* so that a student may apply the knowledge gained from graduate courses. In addition, the student must be in good academic standing (i.e., not on probation) as outlined in the Graduate Handbook section F, before they will be allowed participate in the APE.

The **Integrated Learning Experience (ILE)** requirement is a high quality written document about a project carried out for a non-academic public health entity, plus a public presentation, along with the oral exam. It is completed at the end of all coursework **and** completion of the APE. The written report is submitted to the graduate committee *at least two weeks* before the presentation and oral exam.

The APE and ILE requirements are met with the following (MPH 840):

- The APE (240 hours) requires delivery of at least two different portfolio products (poster, brochures, updated learning materials, website; training manuals, etc.) along with a short discussion of at least five of the 22 Public Health Foundational Competencies and how they were utilized during the APE.
- The ILE requires a high quality written document met with the following:
 1. A written document/report of the project carried out in a non-academic setting and oral exam (which includes the oral presentation); **or**
 2. Six credit hours of public health thesis research and three credit hours (180 hours) of APE (MPH 840), as explained above. If completing a thesis, the research should be focused on population-based health questions rather than on basic research in a laboratory. This does not preclude laboratory analyses of data gathered in populations of animals or humans. A thesis completed as partial fulfillment for the MPH degree must be accepted by the Graduate School, becomes a single-authored publication and contributes to the body of knowledge in public health.

Upon completion of the oral exam and all edits have been made to the ILE document or thesis, the ILE is submitted to the MPH Program office along with all APE portfolio products. The thesis is submitted to K-REX.

Summary

Requirement	Credit Requirement	Total
MPH Core Courses required by all emphasis areas	15-17 hours	15-17 credit hours
Emphasis area courses	19-21 hours	19-21 credit hours
Applied Practical Experience (or Thesis and APE) and ILE	6-9 hours	6-9 credit hours
Total required for MPH degree		42 credit hours

Outline of MPH Course Sequence*

Year 1, Fall Semester – 9 credits	Year 2, Fall Semester – 9 credits
• MPH 701 – Fundamental Methods of Biostatistics (3 hrs)	• Emphasis area required courses (9 hrs)
• MPH 754 – Introduction to Epidemiology (3 hrs)	• Start planning for Applied Practical Experience (APE)
• MPH 802 – Environmental Health (3 hrs)	• Attend MPH Meeting for MPH 840 (APE orientation)
Year 1, Spring Semester – 9 credits	Year 2, Spring Semester – 9 credits
• MPH 720 – Administration of Health Care Organizations (3 hrs)	• Finish emphasis area required and elective courses (9 hrs)
• MPH 818 – Social and Behavioral Bases of Public Health (3 hrs)	• Finish up plans for MPH 840 and turn in signed form
• Emphasis area course (3 hrs)	Year 2, Summer Semester – 3 or 6 credits
• Select Committee and prepare Program of Study (POS)	• Enroll in MPH 840 for 6 hrs for summer graduation or if graduating a different semester, enroll in only 3 hrs
Year 1, Summer Semester – 3 or 6 credits	
• MPH 720 (if not taken spring semester)	Semester you plan to graduate you must be enrolled
• Emphasis area course if desired (3 hrs)	• Enroll in MPH 840 for 3 hrs

*suggested

At the completion of all degree requirements, MPH students will be expected to meet the following:

- **Integration.** Students will have demonstrate their ability to integrate knowledge and skills to solve problems and to produce scholarly work in a culminating experience in the form of a thesis and/or high quality written document with a community-based field project.