Curriculum Matrix for the MPH Program
Learning Objectives and Competencies
MPH Program

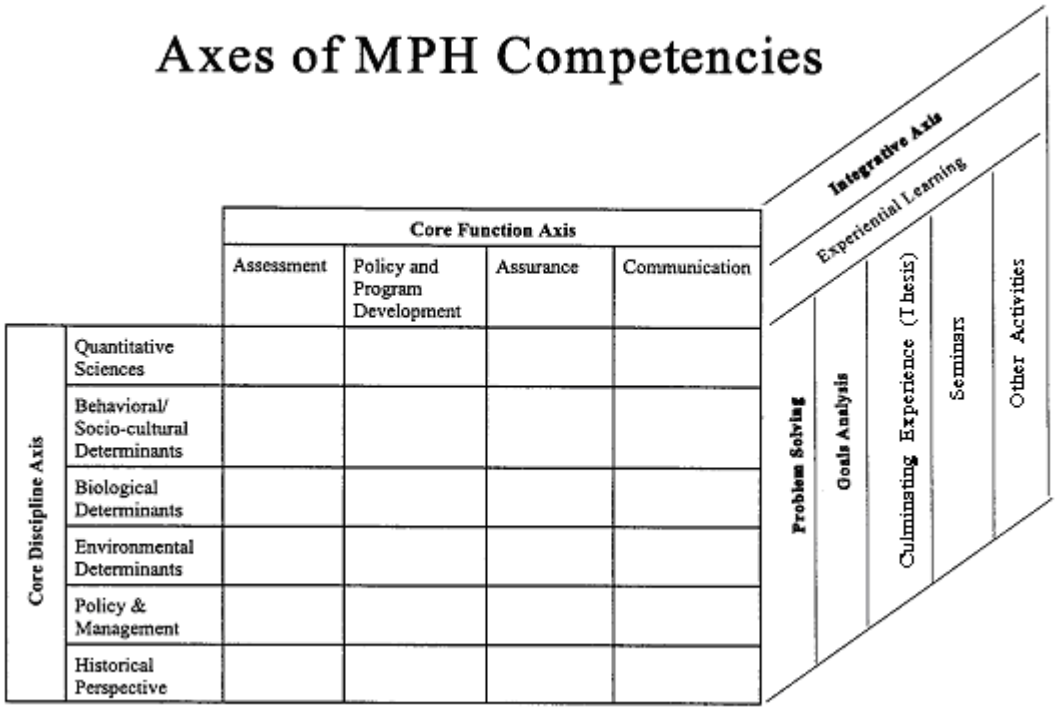
This section describes a multi-dimensional view of MPH competencies used in the development of the MPH program. This organization facilitates the conceptualization of the course content in ways, which assure requisite knowledge, and skills are addressed across the breadth of the core curriculum within a context, which promotes the rapid integration of these skills into professional practice behaviors. This organizational framework also guides the future development and evaluation of the program. Currently, the learning objectives and competencies for the MPH program are organized along the following 3 axes:

Core Function Axis: describes the core functions of professional practice as defined by the US Institute of Medicine and as enhanced by Johns Hopkins Bloomberg School of Public Health: assessment, policy and program development, assurance, and communication. These functions are embodied within the program's problem solving paradigm. This integrative paradigm, described in detail elsewhere in this manual, serves as an organizing principle for the structure and sequencing of the core (discipline-based) curriculum in the form of a professional practice paradigm which progresses through each of these core functions.

Core Discipline Axis: encapsulates the discipline base underpinning the specific knowledge and skills to be conveyed by each of the core discipline requirements (courses or combination of courses). Within each discipline area, a set of competencies define the level of mastery expected of all MPH graduates, regardless of the student's intended focus of study. These competencies are also used by the MPH faculty in determining the suitability of courses for the MPH curriculum.

Integrative Axis: defines the competencies and objectives, which transcend disciplinary boundaries and demonstrate synthesis, analysis, and integration of multiple cognitive, attitudinal, and behavioral domains. This axis is characterized by activities which are inherently integrative in nature, requiring students to simultaneously draw upon and selectively and critically utilize the array of knowledge and skills in their possession. This axis is most closely associated with the behavioral outcomes MPH graduates are expected to manifest in their professional practice activities.

Axes of MPH Competencies



Core Discipline Axis	Core Function Axis: Assessment	Policy and Program Development	Assurance	Communication
Quantitative Sciences				
Behavioral/ Socio-cultural Determinants				
Biological Determinants				
Environmental Determinants				
Policy & Management				
Historical Perspective				

FUNCTIONAL AXIS

1. Assess the health needs of a defined population.

Competency
Characterize the major national and international public health problems
Describe risk factors for major causes of morbidity and mortality
Define and apply the leading conceptualizations of health and health indicators to the population
Identify, define, and measure a public health problem using both quantitative and qualitative measures
Utilize demographic and epidemiologic assessment techniques to characterize the distribution and burden of disease on a population
Use and critically evaluate health information systems
Understand the key biological, environmental, behavioral, cultural, and/or economic determinants of a given public health problem
Determine appropriate use of data and statistical methods for problem identification and measurement

Courses covering the learning outcome:

SPH302 General Principles of Public Health Problem Solving (3)
SPH320 Data Management Systems (1)
SPH321 Inferential Biostatistics (5)
SPH322 Epidemiology (3)
SPH310 Social & Behavioral Sciences in Public Health (3)
SPH311 Problem Investigation in Environmental Health (3)
SPH330 Health Economics & Finance (4)
SPH 351 Qualitative Research Methods (3)
SPH352 Survey Research Methods (3)
SPH323 Biostatistics: Modeling & Sampling (4)
SPH324 Intermediate Epidemiology (3)
SPH390 MPH Project Planning (1)
SPH 391 Master's Project Implementation – I (3)
SPH392 Master's Project Implementation- II (4)
SPH393 MPH Internship (3)

2. Develop, analyze, and implement targeted health policies and programs.

Competency
Identify the scope of public health issues and policies applicable to defined populations and to vulnerable subgroups of those populations
Describe and critique the government's role in health policy development and implementation
Analyze and evaluate the process of public policy-making and how it affects the design, implementation and performance of health policies
Identify policies and services appropriate to promote and maintain health or prevent injury and disease, for communities, families, and individuals
Articulate the fiscal, administrative, legal, social, and political implications of a strategy developed to solve a health problem
Relate how advocacy, biases, politics, and information influence policy-making and program implementation
Make relevant scientific, ethical, health and human rights, economic, administrative and/or political decisions based in light of available data
Develop a plan to implement a policy that addresses organizational design and management; leadership; communication; financial planning and management; ethics, values, and human rights; and human resources management

Courses covering the learning outcome:

SPH302 General Principles of Public Health Problem Solving (3)
SPH330 Health Economics & Finance (4)
SPH331 Comparative Health Systems (2)
SPH332 Program Planning (3)
SPH340 Health Services Management (3)
SPH390 MPH Project Planning (1)
SPH393 MPH Internship (3)

3. Assure the appropriateness and effectiveness of a given public health intervention.

Competency
Design a program evaluation that is methodologically sound
Develop processes to monitor and evaluate programs for their effectiveness, quality, and freedom from unintended harms
Apply principles important in managing and improving health services organizations
Apply key concepts of human resource management to achieving the strategic objectives of health service organizations
Demonstrate facility with appropriate database management and reporting systems for evaluation and monitoring of interventions

Courses covering the learning outcome:

SPH302 General Principles of Public Health Problem Solving (3)
SPH350 Project Development and Evaluation (4)
SPH340 Health Services Management (3)
SPH324 Intermediate Epidemiology (3)
SPH 351 Qualitative Research Methods (3)
SPH352 Survey Research Methods (3)

4. Communicate public health messages to targeted audiences.

Competency
Use basic word processing, statistical/graphical, spreadsheets, and relational database software to convey the results of quantitative and qualitative analyses
Prepare and deliver effective oral and written presentations
Present demographic, statistical, programmatic, and technical information accurately and effectively for professional and lay audiences
Develop and use team-building skills that facilitate work team performance
Organize and participate in groups to address specific public health issues
Solicit input from individuals, organizations, government agencies, and communities to assure comprehensiveness of information
Demonstrate effective advocacy for programs and resources that further the health of the public

Courses covering the learning outcome:

SPH302 General Principles of Public Health Problem Solving (3)
SPH350 Project Development and Evaluation (4)
SPH390 MPH Project Planning (1)
SPH360 Training of Trainers (3)
SPH 381 Graduate Research Seminar (3)
SPH 391 Master's Project Implementation – I (3)
SPH392 Master's Project Implementation- II (4)
SPH393 MPH Internship (3)

CORE DISCIPLINE AXIS

1. Behavioral Sciences

Competency
Integrate the psychologic and sociologic conceptualization of health, health behavior and illness
Describe the concepts of stress, coping and social support, their inter-relationships and assess their impact on health, health behavior and illness
Analyze and predict the influence of major social structural divisions such as gender, socioeconomic status, and ethnicity on health, health behavior and the treatment of illness
Compare theories and principles of behavior change. Analyze their applicability to different types of health behavior problems.
Formulate behavioral, communication, educational, and advocacy strategies for improving the health of communities and individuals
Evaluate processes and outcomes of social and behavioral interventions on the health of communities and individuals

Courses covering the discipline:

SPH310 Social & Behavioral Sciences in Public Health (3)
SPH350 Project Development and Evaluation (4)

2. Biological Sciences (Disease Biology)

Competency
Differentiate the biology, pathophysiology, modes of transmission and methods of prevention and control of the most important infectious diseases.
Describe the pathophysiology and etiology of genetic and environmentally-induced diseases of public health importance
Compare host responses to major environmental exposures (physical, chemical, biological)
Describe biologic host responses to vaccines, chemoprophylactic, and pharmacologic methods of prevention and treatment of diseases of public health importance
Select ecologic principles directly relevant to major public health diseases
Select and apply biological principles to developing disease prevention, control, or management programs.

Courses covering the discipline:

SPH311 Problem Investigation in Environmental Health (3)
SPH322 Epidemiology (3)
SPH324 Intermediate Epidemiology (3)

3. Environmental Health Sciences

Competency
Identify, describe and differentiate the various environments that produce opportunities for exposures to environmental toxicants
Appraise target populations at risk for such environmental exposures, with emphasis on identification of susceptible groups
Characterize environmental factors (agents, vectors, and conditions) that influence transfer to the host and the agents toxicokinetics, with emphasis on route of entry
Analyze the interaction of environmental toxicants with biological systems, with emphasis on their toxicodynamics
Prepare a simple risk assessment/risk management analysis based on the problem-solving paradigm

Courses covering the discipline:

SPH311 Problem Investigation in Environmental Health (3)
SPH302 General Principles of Public Health Problem Solving (3)

4. Management Sciences

Competency
Describe the organization and structure of a health service system
Evaluate basic models of health delivery systems
Assess major approaches to managing and improving health services organizations (including approaches to process improvement, strategic planning, organizational design)
Apply performance improvement concepts and tools in revising a specific process within an organizational setting
Apply key concepts of human resource management to achieving the strategic objectives of health service organizations
Prepare a basic budget

Courses covering the discipline:

SPH330 Health Economics & Finance (4)
SPH331 Comparative Health Systems (2)
SPH332 Program Planning (3)
SPH340 Health Services Management (3)

5. Quantitative Sciences*

Competency
Identify, retrieve, and organize available data relevant to disciplines of public health
Select appropriate data and statistical methods to address a public health question
Compare and contrast basic study designs used in public health
Interpret descriptive and inferential statistics in data analysis
Evaluate the integrity and comparability of data and identify gaps in data sources
Plan a surveillance system for a disease/condition of public health importance
Critique the quantitative methods used in published literature
Explain findings presented in the public health literature

* includes biostatistics, epidemiology, information systems, and computing

Courses covering the discipline:

SPH320 Data Management Systems (1)
SPH321 Inferential Biostatistics (5)
SPH322 Epidemiology (3)
SPH323 Biostatistics: Modeling & Sampling (4)
SPH324 Intermediate Epidemiology (3)
SPH352 Survey Research Methods (3)

6. Historical Perspective

Competency
Critically analyze basic assumptions and conceptual frameworks used to analyze health issues
View contemporary problems in historical perspective
Conduct historical research relevant to contemporary problems affecting the public's health
Communicate about historical issues through rhetoric, debate and prose
Examine and critically assess recent scholarship on the social history of health care.

Courses covering the discipline:

SPH302 General Principles of Public Health Problem Solving (3)
SPH381 Graduate Research Seminar (3)

INTEGRATIVE AXIS

1. **Demonstrate integration of new knowledge and skills with previous training and experience by critical and selective application within a personally and professionally relevant context.**

Competency
Critically apply the problem solving framework to a public health problem
Conduct a needs analysis of personal/professional skills and competencies and design a curriculum to meet those needs
Develop habits which foster life-long learning and collegial exchange
Justify/defend facility with core MPH competencies by the critical application of an appropriate professional practice framework
Orally and in writing, present and defend a proposed response to a public health problem in a public (professional or lay) setting

Students develop breadth/depth in areas of personal interest through the selection of topics for individual and group assignments and self-directed study.

Courses covering the learning outcome:

SPH302 General Principles of Public Health Problem Solving (3)
SPH360 Training of Trainers (3)
SPH382 Master's Project Implementation – I (3)
SPH392 Master's Project Implementation- II (4)
SPH381 Graduate Research Seminar (3)
SPH393 MPH Internship (3)