

A. BIostatISTICS

Biostatistics is the development and application of statistical reasoning and methods in addressing, analyzing and solving problems in public health; health care; and biomedical, clinical and population-based research.

Competencies: Upon graduation a student with an MPH should be able to...

- A. 1. Describe the roles biostatistics serves in the discipline of public health.
- A. 2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.
- A. 3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
- A. 4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
- A. 5. Apply descriptive techniques commonly used to summarize public health data.
- A. 6. Apply common statistical methods for inference.
- A. 7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.
- A. 8. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
- A. 9. Interpret results of statistical analyses found in public health studies.
- A. 10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.

B. ENVIRONMENTAL HEALTH SCIENCES

Environmental health sciences represent the study of environmental factors including biological, physical and chemical factors that affect the health of a community.

Competencies: Upon graduation a student with an MPH should be able to...

- B. 1. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.
- B. 2. Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
- B. 3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.
- B. 4. Specify current environmental risk assessment methods.
- B. 5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.
- B. 6. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
- B. 7. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.
- B. 8. Develop a testable model of environmental insult.

C. EPIDEMIOLOGY

Epidemiology is the study of patterns of disease and injury in human populations and the application of this study to the control of health problems.

Competencies: Upon graduation a student with an MPH should be able to...

- C. 1. Identify key sources of data for epidemiologic purposes.
- C. 2. Identify the principles and limitations of public health screening programs.
- C. 3. Describe a public health problem in terms of magnitude, person, time and place.
- C. 4. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
- C. 5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
- C. 6. Apply the basic terminology and definitions of epidemiology.
- C. 7. Calculate basic epidemiology measures.
- C. 8. Communicate epidemiologic information to lay and professional audiences.
- C. 9. Draw appropriate inferences from epidemiologic data.
- C. 10. Evaluate the strengths and limitations of epidemiologic reports.

D. HEALTH POLICY AND MANAGEMENT

Health policy and management is a multidisciplinary field of inquiry and practice concerned with the delivery, quality and costs of health care for individuals and populations. This definition assumes both a managerial and a policy concern with the structure, process and outcomes of health services including the costs, financing, organization, outcomes and accessibility of care.

Competencies: Upon graduation a student with an MPH should be able to...

- D. 1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US.
- D. 2. Describe the legal and ethical bases for public health and health services.
- D. 3. Explain methods of ensuring community health safety and preparedness.
- D. 4. Discuss the policy process for improving the health status of populations.
- D. 5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives.
- D. 6. Apply principles of strategic planning and marketing to public health.
- D. 7. Apply quality and performance improvement concepts to address organizational performance issues.
- D. 8. Apply "systems thinking" for resolving organizational problems.
- D. 9. Communicate health policy and management issues using appropriate channels and technologies.
- D. 10. Demonstrate leadership skills for building partnerships.

E. SOCIAL AND BEHAVIORAL SCIENCES

The social and behavioral sciences in public health address the behavioral, social and cultural factors related to individual and population health and health disparities over the life course. Research and practice in this area contributes to the development, administration and evaluation of programs and policies in public health and health services to promote and sustain healthy environments and healthy lives for individuals and populations.

Competencies: Upon graduation a student with an MPH should be able to...

- E. 1. Identify basic theories, concepts and models from a range of social and behavioral disciplines that are used in public health research and practice.
- E. 2. Identify the causes of social and behavioral factors that affect health of individuals and populations.
- E. 3. Identify individual, organizational and community concerns, assets, resources and deficits for social and behavioral science interventions.
- E. 4. Identify critical stakeholders for the planning, implementation and evaluation of public health programs, policies and interventions.
- E. 5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions.
- E. 6. Describe the role of social and community factors in both the onset and solution of public health problems.
- E. 7. Describe the merits of social and behavioral science interventions and policies.
- E. 8. Apply evidence-based approaches in the development and evaluation of social and behavioral science interventions.
- E. 9. Apply ethical principles to public health program planning, implementation and evaluation.
- E. 10. Specify multiple targets and levels of intervention for social and behavioral science programs and/or policies.