**Required Core Competencies for Professional Masters Students**

The school has identified the following schoolwide competencies for the five core knowledge areas of public health for HSPH professional master’s students:

1. **Biostatistics**
   - Demonstrate the roles biostatistics serves in the discipline of public health.
   - Interpret graphical and descriptive techniques commonly used to summarize public health data.
   - Describe basic concepts of probability, random variation, and commonly used statistical probability distributions.
   - Apply common statistical methods for estimation and inference and use them appropriately according to underlying assumptions and type of study design.
   - Interpret the results of statistical analyses to provide evidence within the context of public health, health care, biomedical, clinical and population-based studies and research.
   - Develop basic skills for utilizing statistical computing software for performing data analyses.

2. **Epidemiology**
   - Describe the role of epidemiology as a quantitative approach to address problems in clinical medicine and public health.
   - Describe and apply the basic principles and methods of epidemiology, including disease measures, association and causation, bias, confounding and effect modification, and susceptibility.
   - Interpret descriptive epidemiologic results in order to develop hypotheses of possible risk factors of a disease.
   - Develop a foundation for designing valid and efficient epidemiologic studies to address public health problems, including understanding the strengths and limitations of descriptive, observational, and experimental studies.
   - Become a critical reader of epidemiologic literature by analyzing the appropriateness of study design, quality of data, methodological strategies, and interpretation of results.

3. **Environmental health sciences**
   - Characterize the human health effects, both acute and chronic, of major environmental and occupational hazards such as air pollution, metals, organic pollutants, microbial contamination of drinking water, and physical hazards.
   - Analyze sources, pathways, and routes of exposure to these environmental and occupational hazards (and safety), and determine the populations with a high risk of exposure.
   - Assess the factors that can modify the overall impact of environmental and occupational hazards on a population (e.g., age, genetic polymorphisms, nutritional states).
   - Apply risk assessment and risk management concepts to develop effective guidelines and policies to mitigate and manage environmental and occupational hazards.
4. **Social and behavioral sciences**
   - Compare social, developmental, and behavioral theories of health, health behavior, and illness, and analyze their applicability to different types of health problems.
   - Formulate social and behavioral change interventions based on these theories that are appropriate and responsive to the social and cultural context.
   - Develop program and policy implementation skills, including communication, advocacy, and engaging the media.
   - Design and implement program evaluations using qualitative and quantitative methods.
   - Critique the validity of basic behavioral and evaluation research.
   - Identify individual, organizational and community concerns, assets, resources, and deficits for social and behavioral science interventions.

5. **Health services administration (HSA)**
The HSA core courses are classified into three groups for purposes of core competencies: health management, health economics, and health policy and politics. Students are required to develop core competencies within one of these groups as well as the cross-cutting HSA competencies.

**Health management**
- Develop financial literacy.
- Demonstrate understanding of the human, social, and economic dynamics of organizational behavior.
- Develop competency in making effective managerial decisions under conditions of uncertainty.

**Health economics**
- Articulate the functions of supply and demand.
- Assess the extent to which real markets diverge from perfect markets.
- Apply models of rational choice to markets.
- Assess the effects of financial and payment incentives on the behavior of individuals and organizations.
- Apply these tools of economic analysis to new policy issues and proposals.

**Health policy and politics**
- Demonstrate capacity to apply conceptual framework for understanding political and policy processes in health care.
- Explain how political institutions and processes influence resource allocation in health care.
- Understand basic organization, financing, and delivery of health services and public health systems.
- Discuss the policy process for improving the health status of populations.

**Cross-cutting HSA competencies**
- Work effectively as part of a team, including getting and receiving candid and constructive feedback.
• Communicate clearly and succinctly, in writing and orally, to public health professionals and the public.
• Advocate for a policy or strategy, including developing an appropriate communication strategy.