The MPH competencies are based on those approved by the Association of Schools of Public Health (ASPH) in 2006. By graduation, all MPH students must demonstrate the ability to apply public health perspectives, knowledge, and skills in five discipline specific areas (biostatistics, epidemiology, environmental health sciences, health policy and management, social and behavioral sciences) and seven cross-cutting areas (communication and informatics, diversity and culture, leadership, professionalism, program planning, systems thinking, and public health biology). The discipline specific competencies are covered in the following five core public health courses: PH 604 Health Services Administration, PH 607 Biostatistics, PH 608 Behavioral and Social Aspects of Public Health, PH 618 Epidemiology, and PH 648 Environmental Health. The cross-cutting competencies are embedded throughout the entire curriculum. In addition, MPH students are evaluated on competencies associated with their chosen Track Option: Community Health or Global Health.

Upon completion of the MPH Program at TUC, graduates should master the following competencies:

**Discipline Specific**

**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:**

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

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:

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

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

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

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

Cross Cutting

SYSTEMS THINKING

The ability to recognize system level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments.

A. Identify characteristics of a system in the context public health interactions.
B. Identify unintended consequences produced by changes made to a public health system.
C. Explain how systems (e.g. individuals, social networks, organizations and
communities) may be viewed as systems within systems in the analysis of public health problems.

D. Explain how the contexts of gender, race, poverty, history, migration and culture are important in the design of interventions within public health systems.

E. Illustrate how changes in public health systems (including input processes and output) can be measured.

F. Analyze inter-relationships among systems that influence the quality of life of people in their communities.

G. Analyze the effects of political, social and economic policies on public health systems at the local, state, national and international levels.

H. Analyze the impact of global trends and interdependencies on public health-related problems and systems.

I. Assess strengths and weaknesses of applying the systems approach to public health problems.

PROGRAM PLANNING
The ability to plan for the design, development, implementation, and evaluation of strategies to improve individual and community health.

A. Describe how social, behavioral, environmental and biological factors contribute to specific individual and community health outcomes.

B. Describe the tasks necessary to assure that program implementation occurs as intended.

C. Explain how the findings of a program evaluation can be used.

D. Describe logic models in program development implementation and evaluation.

E. Differentiate among goals, measurable objectives, related activities and expected outcomes for a public health program.

F. Differentiate the purposes of formative, process and outcome evaluation.

G. Differentiate between qualitative and quantitative evaluation methods in relation to their strengths limitations and appropriate uses and emphases on reliability and validity.

H. In collaboration with others prioritize individual, organizational, and community concerns and resources for public health programs.

I. Assess evaluation reports in relation to their quality utility and impact on public health.

PROFESSIONALISM
The ability to demonstrate ethical choices, values and professional practices implicit in public health decision; consider the effect of choices on community stewardship, equity, social justice and accountability; and to commit to personal and institutional development.

A. Discuss major milestones in the history and development of the public health profession and their relevance for practice in the field.
B. Apply basic principles of ethical analysis (e.g. the Public Health Code of Ethics, human rights framework, other moral theories) to issues of public health practice and policy.
C. Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.
D. Apply the core functions of assessment, policy development and assurance in the analysis of public health problems and their solutions.
E. Promote high standards of personal and organizational integrity, compassion, honesty and respect for all people.
F. Analyze determinants of health and disease using an ecological framework.
G. Analyze the potential impacts of legal and regulatory environments on the conduct of ethical public health research and practice.
H. Distinguish between population and individual, ethical considerations in relation to the benefits, costs and burdens of public health programs.
I. Embrace a definition of public health that captures the unique characteristics of the field (e.g. population-focused, community-oriented, prevention-motivated and rooted in social justice) and how these contribute to professional practice.
J. Appreciate the importance of working collaboratively with diverse communities and constituencies (e.g. researchers, practitioners, agencies and organizations).

PUBLIC HEALTH BIOLOGY
The ability to incorporate public health biology – the biological and molecular context of public health – into public health practice.
A. Describe how behavior alters human biology.
B. Identify the ethical, social and legal issues implied by public health biology.
C. Explain the role of biology in the ecological model of population-based health.
D. Articulate how biological, chemical and physical agents affect human health.
E. Apply biological principles to development and implementation of disease prevention control or management programs.
F. Apply evidence-based biological and molecular concepts to inform public health laws policies and regulations.
G. Explain and integrate general biological and molecular concepts into public health.
LEADERSHIP
The ability to create and communicate a shared vision for a changing future; champion solutions to organizational and community challenges; and energize commitment to goals.
A. Describe the skills, responsibilities and attributes of leadership in public health.
B. Describe alternative strategies for collaboration and partnership among organizations focused on public health goals.
C. Articulate an achievable mission set of core values and vision.
D. Engage in dialogue and learning from others to advance public health goals.
E. Demonstrate team building negotiation and conflict management skills.
F. Demonstrate transparency integrity and honesty in all actions.
G. Use collaborative methods for achieving organizational and community health goals.
H. Apply social justice and human rights principles when addressing community needs.
I. Develop strategies to motivate others for collaborative problem solving decision-making and evaluation.

COMMUNICATIONS AND INFORMATICS
The ability to collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process, and present information to different audiences in-person, through information technologies, or through media channels; and to strategically design the information and knowledge exchange process to achieve specific objectives.
A. Describe how the public health information infrastructure is used to collect process maintain and disseminate data.
B. Describe how societal organizational and individual factors influence and are influenced by public health communications.
C. Apply theory and strategy-based communication principles across different settings and audiences.
D. Apply legal, ethical and confidentiality principles to the use of information and resources in public health settings.
E. Use communication and informatics tools in the process of design implementation and evaluation of public health programs.
F. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.
G. Use information technology to access, evaluate and interpret public health data.
H. Use informatics methods and resources as strategic tools to promote public health.
I. Use informatics and communication methods to advocate for community public health programs and policies.

DIVERSITY AND CULTURE
The ability to interact with both diverse individuals and communities to produce or impact an intended public health outcome.
A. Describe the roles of history, power, privilege and structural inequality in producing health disparities.
B. Explain how professional ethics and practices relate to equity and accountability in diverse community settings.
C. Explain why cultural competence alone cannot address health disparity.
D. Use culturally appropriate concepts and skills to engage and empower diverse communities.
E. Apply the principles of community-based participatory research to improve health in diverse populations.
F. Differentiate the terms ‘availability’, ‘acceptability’ and ‘accessibility’ in the context of health care across diverse populations.
G. Differentiate between linguistic competence, cultural competency and health literacy in public health practice.
H. Cite examples of situations where consideration of culture-specific needs resulted in a more effective modification or adaptation of a health intervention.
I. Develop public health programs and strategies responsive to the diverse cultural values and traditions of the communities being served.

Track/Emphasis

COMMUNITY HEALTH

- Identify and assess community status and community health needs
- Plan, develop, and implement community health programs using a variety of strategies to improve a community’s health.
- Advocate for better health and wellbeing through community mobilization efforts.
- Analyze and/or evaluate policies that impact a community’s health
- Demonstrate cultural sensitivity towards underserved populations.
- Manage fiscal and organizational resources to insure optimal program and service delivery.
- Evaluate the efficacy of health promotion/prevention programs.
- Demonstrate a commitment to social justice and health equity.
- Explain and interpret the roles and/or approaches of public health organizations.
- Synthesize and disseminate public health information.
- Apply conceptual frameworks of health patterns, determinants and disparities in support of community health policy, education, promotion or prevention.
GLOBAL HEALTH

- Define the global public health challenges of the developing world in terms of key parameters including population, region, countries and magnitude.
- Explain the political economy of global health issues.
- Demonstrate the linkages between local and global health problems.
- Demonstrate the health disparities within the developing states and between the developed and developing world.
- Communicate effectively the mandates, roles and approaches of international public health organizations.
- Facilitate to build partnership with health institutions of higher learning, the NGO sector and local community organizations.
- Demonstrate an understanding of community’s awareness of their own health problems and their solutions.
- Recognize the primacy of local solutions to global health issues and promote participatory approaches to problem solving.
- Demonstrate a commitment to public health that values social justice and promotes health equity globally.
- Apply theoretical concepts related to global health patterns and social determinants in support of global health policy, promotion or prevention.
- Engage in critical thinking about global health policy and health strategies, especially regarding feasibility, cost effectiveness, sustainability and scalability of different approaches.
- Demonstrate an understanding of the importance of listening in an unbiased manner, respecting diverse points of view, and observing humility in international situations.
- Develop skills to advocate for programs, resources and policies that advance global public health.