School of Community and Environmental Health
3134 Health Sciences Building
757-683-4259
http://www.odu.edu/commhealth
Muge Akpinar-Elci, Chair

The School of Community and Environmental Health offers graduate and certificate programs which lead to careers in health services research, public health, community health, health care administration, environmental health, and occupational safety. The Master of Science in community health offers practicing health care professionals the opportunity to complete their degrees in a distance format with emphasis areas in environmental health, occupational safety and health, and industrial hygiene. ODU also offers a Master of Public Health degree in collaboration with Eastern Virginia Medical School.

Master of Public Health
Deanne Shuman, Co-Director

The Master of Public Health (MPH) degree is an accredited professional degree offered jointly by Eastern Virginia Medical School and Old Dominion University. The program provides graduates with an understanding of the public health sciences and with knowledge and skills that can be utilized in healthcare management, population-based research and the community practice of public health.

The program focuses upon four specialized tracks: Health Management, Epidemiology, Global Environmental Health, and Health Promotion. Students complete both didactic and experience-based courses. A community practicum exposes students to community organizations that support public health. Classes are taught during three terms each year; with this schedule, the required 43 credit hours can be completed in two years of full-time study.

Core courses are conducted at both the EVMS and ODU campuses and may be offered as distance courses with a classroom option for local students. Eastern Virginia Medical School offers the tracks in Health Management and in Epidemiology. Old Dominion University offers the tracks in Environmental Health and in Health Promotion. Students are advised by faculty members in their selected track.

The program will benefit health professionals who are or will be working in private, government or community organizations with the following responsibilities: assessing health status or needs in populations, designing and implementing programs, managing administrative functions, conducting program evaluation and outcomes research, developing coalitions to meet community needs, marketing health services, analyzing the epidemiology of specific diseases and measuring or assuring the quality of healthcare and public health services and products.

The MPH program administered solely by Old Dominion University is planned for implementation in fall 2019, pending approval of the State Council of Higher Education for Virginia. New admissions will begin in spring 2019. Contact Dr. Deanne Shuman for MPH program information, dshuman@odu.edu.

Master of Science - Community Health
757-683-4594
https://www.odu.edu/commhealth/academics/graduate-programs

Anna Jeng, Graduate Program Director

The School of Community and Environmental Health offers a Master of Science in Community Health with an emphasis in environmental health. The emphasis is designed to meet the needs of students seeking graduate education in the environmental health field. The goal of the program is to provide advanced understanding of human health efforts due to interactions with chemical, biological, and physical agents in natural and man-made environments. Students may shape the emphasis area to meet their needs in general environmental health, industrial hygiene, occupational safety, or hazardous materials management.

Admission

The selection of community health students is based on several criteria. To qualify for admission, an applicant must meet the general University admission requirements at the graduate level. In addition, the School of Community and Environmental Health requires:

1. Two letters of recommendation from teachers, supervisors, and/or employers.
2. Evidence of a basic foundation of undergraduate courses in the life sciences, behavioral sciences, and social sciences with a minimum 2.80 grade point average. If it is determined that a student is deficient in one of these three general foundation areas, he or she may be required to take additional course work prior to admission or to enroll in undergraduate course work to strengthen the foundation area.
3. A satisfactory Graduate Record Examination (GRE) aptitude score.
4. Work experience or voluntary participation in a health-related agency or program will be evaluated as part of the student’s admission package. Students can be admitted who do not have work or volunteer experience, however, students without experience will be required to produce a portfolio of health related volunteer or work experiences that they have acquired during their time in the program.
5. A career-goals paper. This paper asks the applicant to discuss his or her career goals and the relationship of the community health graduate program to those goals. This paper is evaluated by the faculty of the school for the applicant’s ability to present a clear sense of professional purpose, as well as his or her ability to write a concise and grammatically acceptable paper.

Prerequisite Requirements for the Environmental Health Concentration

This concentration has specific prerequisite courses at the undergraduate level that must be met. Also, admission to the program is at the discretion of the faculty. In addition to the core course requirements, there are specific course requirements for each emphasis area.

<table>
<thead>
<tr>
<th>Prerequisite Courses</th>
<th>Hours</th>
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<tbody>
<tr>
<td>General Biology</td>
<td>8</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td><strong>One of the following:</strong></td>
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<tr>
<td>Introduction to Physics (with a lab)</td>
<td>3</td>
</tr>
<tr>
<td>Ocean, Earth, and Atmospheric Sciences</td>
<td>3</td>
</tr>
<tr>
<td><strong>Statistics</strong></td>
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Total Hours 22

Degree Requirements

The curriculum includes a total of 42 credit hours with a 24-credit hour core of environmental and community health courses that constitutes the foundation of the program complemented by a minimum of 6 credit hours of practicum experience or 6 credit hours of thesis research and 12 credit hours of electives.

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENVH 600 Principles of Environmental Health Science and Protection</td>
<td>3</td>
</tr>
<tr>
<td>CHP 640 Statistical Reasoning for the Health Professions</td>
<td>3</td>
</tr>
<tr>
<td>ENVH 603 Environmental Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>CHP 601 Research Design and Evaluation in the Health Professions</td>
<td>3</td>
</tr>
</tbody>
</table>
The certificate program in occupational safety is designed to prepare students to meet safety standards and guidelines in such areas as business, education and industry with the goal of managing operations to minimize financial losses resulting from accidents, health claims, legal actions, and property damage. It is especially attractive to students in majors such as engineering, occupational and technical studies, and business who may reasonably anticipate assignment of safety as an additional duty, or to individuals already employed in the occupational health and safety field. Course taken for the Certificate may also be used to qualify for safety positions, enhance the qualifications of Certified Safety Professional (CSP) and Certified Industrial Hygienist (CIH) candidates, and provide maintenance points for professionals holding the CSP or CIH certifications. Courses in the certificate program may be taken through degree or non-degree programs, and may be applied to degree requirements at the graduate level in environmental health. For completion of the graduate certificate program students must have a minimum cumulative grade point average of 3.00 in all courses taken toward the certificate. After successful completion of the program, a Certificate in Occupational Safety will be awarded.

A total of 15-16 semester hours is required, comprised of three core courses and six to seven hours of electives. All courses, with the exception of the lab course, are provided as distance learning, either as televised or web-based courses. There are no prerequisites.

Core courses include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENPV 506</td>
<td>Principles of Occupational Safety and Health</td>
<td>9</td>
</tr>
<tr>
<td>ENPV 525</td>
<td>Occupational Safety and Health Program Management</td>
<td>9</td>
</tr>
<tr>
<td>ENPV 507</td>
<td>Occupational Safety Standards, Laws and Regulations</td>
<td>9</td>
</tr>
</tbody>
</table>

Select two of the following electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENPV 501</td>
<td>Occupational Health</td>
<td>6</td>
</tr>
<tr>
<td>ENPV 526</td>
<td>Physical Hazards and Their Control</td>
<td>6</td>
</tr>
<tr>
<td>ENPV 540</td>
<td>Principles of Ergonomics</td>
<td>6</td>
</tr>
<tr>
<td>ENPV 541</td>
<td>Industrial Hygiene</td>
<td>6</td>
</tr>
<tr>
<td>ENPV 542</td>
<td>Industrial Hygiene Sampling Methods</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Hours 15-16

**Linked Program – Bachelor of Science in Environmental Health (B.S.E.H.) to Master of Science in Community Health**

Bachelor of Science in Environmental Health (B.S.E.H.) students who have a 3.00 GPA and have senior standing may apply for acceptance into the Bachelor of Science in Environmental Health to M.S. in Community Health linked program or to a Master of Public Health (MPH) linked program. These programs allow gifted undergraduate B.S.E.H. students the opportunity to take up to 12 semester hours of graduate course work and apply them to both degrees. Other restrictions apply. Students interested in this program should contact the B.S.E.H. program director James English at 757-683-6010 for more information.

**COMMUNITY HEALTH PROFESSIONS Courses**

**CHP 500. Ethics in Health Administration. 3 Credits.**
A survey of philosophical problems common to health sciences, including an analysis of the nature of health in its historical and contemporary contexts. Prerequisite: permission of the instructor.

**CHP 515. Critical Issues in Public/Community Health Administration. 3 Credits.**
Identification and analyses of critical issues currently facing public/community health and the American health care system. Prerequisites: Permission of the instructor.
CHP 520. Foundations of Gerontology, 3 Credits.
Focuses on changes in the characteristics, status, and roles of the elderly; personality development, mental health, and adjustment of individuals with emphasis on biophysical and psychosocial processes as they influence capacity and performance in the elderly. Prerequisite: permission of instructor.

CHP 525. Health Aspects of Aging, 3 Credits.
Identifies major issues and problems in meeting health care needs of the aged. Emphasis on role of social assets and supports in determining effects of life changes on the aging process. Prerequisite: CHP 520 or permission of the instructor.

CHP 530. Community Health Resources and Health Promotion, 3 Credits.
Designed to provide information about community health resources. Prerequisite: permission of instructor.

CHP 540. Finance and Budgeting in Healthcare, 3 Credits.
This course covers financial management functions in healthcare organizations including operating and capital budgeting processes along with budgeting and financial controls.

CHP 545. Health Services Research, 3 Credits.
This course focuses on health services research and its assessment abilities and application in health care. Topics include the use of EXCEL, SAS, and SPSS to analyze data. An exploration of the issues and challenges of health services research for health related organizations and other organizations. Statistical procedures and practices will also be conducted. Prerequisite: STAT 130M.

CHP 550. Public and Community Health Administration, 3 Credits.
A review of the principles and practice of administering public and community health organizations and programs at federal, state, and local levels. Constitutional, statutory and administrative bases for organizing and conducting public/community health programs will be discussed. Prerequisite: permission of instructor.

CHP 556. Substance Use and Abuse, 3 Credits.
Focuses on facts about drugs and drug abuse, on value judgments concerning drugs, and on interaction of facts and value judgments. Emphasis is on drug abuse prevention. Prerequisite: permission of instructor.

CHP 561. Managerial Epidemiology, 3 Credits.
This course will blend theory and application of epidemiology. This course will also provide a comprehensive introduction to epidemiology and explain how to use epidemiological concepts and tools to improve decisions about the management of health services. Prerequisites: CHP 200 and a declared major in the University or approval of the program director.

CHP 565. Policy and Politics of Health, 3 Credits.
This course will explore both health policy and the politics of health. Students will develop an understanding of the systematic and analytical framework for developing health and health care policy issues.

CHP 570. Death, Dying and Survivorship, 3 Credits.
Utilizes readings from sociology, psychology, literature, art, law, religion, and the medical and nursing sciences to explore death in its personal, cultural and professional significance. Audiosual presentations and guest speakers will provoke thought and discussion to allow students to come to terms with their attitudes toward death and assist others in dealing with this important life experience. Prerequisite: permission of instructor.

CHP 575. Healthcare Marketing, 3 Credits.
This course provides a basic understanding of marketing in a health care setting. This course will cover the following: the history of marketing in a health care setting, health care markets, marketing techniques, and leadership skills in managing and supporting the marketing efforts. Prerequisite: a declared major in the University or approval of the program director.

CHP 580. Health Ethics and the Law, 3 Credits.
This course provides the students with a basic knowledge of health law and examines legal issues confronting health services administrators in various health care environments. Prerequisite: a declared major in the University or approval of the program director.

CHP 585. Health Informatics, 3 Credits.
This course focuses on healthcare informatics (information systems) and application in health care organizations. It provides an overview of health information system concepts, management, and integration of technology in healthcare organizations.

CHP 595. Topics in Public/Community Health Administration, 1-3 Credits.
This course provides the opportunity for the study of selected topics in public/community health, including informatics, under the supervision of a faculty member. Prerequisite: permission of the instructor.

CHP 596. Topics in Public/Community Health Administration, 1-3 Credits.
This course provides the opportunity for the study of selected topics in public/community health, including informatics, under the supervision of a faculty member. Prerequisite: permission of the instructor.

CHP 597. Readings in Public/Community Health Administration, 1-3 Credits.
This course provides the opportunity for advanced investigations of selected issues/concerns in public/community health administration, under the supervision of a faculty member. It must be taken by students who wish to pursue topics not covered by regularly scheduled courses. Prerequisite: permission of the instructor.

CHP 600. Principles of Community Health, 3 Credits.
The course will provide an introduction to the relationship between health status, the current multifaceted delivery system and the social and political aspects of the community. Topics of this course include community health education, sanitation, mental health, maternal and child health, and others.

CHP 601. Research Design and Evaluation in the Health Professions, 3 Credits.
This course is designed for graduate students in the health professions to explore the concepts, problems, needs, and issues in both conducting research and evaluation and in analysis of research related to the health professions. An understanding of statistics is strongly advised.

CHP 602. Principles of Environmental Health Science and Protection, 3 Credits.
An introduction to the chemical, physical and biological factors affecting human health and well being. The emphasis is on the application of controls to prevent disease and maximize environmental quality. (Cross-listed with ENVI 600).

CHP 611. Social and Cultural Aspects of Public Health and Illness, 3 Credits.
Scholars will gain an understanding of social and cultural issues associated with public health and illness through discussion, application of principles and theories and an interactive case study. Scholars will identify personal and social influences on public health and discuss health disparities and community health needs. Special attention will be paid to populations bound by shared risks and behaviors.

CHP 630. Health Care Marketing, 3 Credits.
This course is devoted to exploring the fundamentals of marketing as they relate to the health care environment. Emphasis will be placed on marketing of new programs, including health-promotion programs. It provides a survey of marketing activities as they relate to the health care environment.

CHP 633. Financing Health Care, 3 Credits.
Students will examine financial evaluation of the health care industry, the source of funds, and the effects of changing patient policies. Other topics of interest will be financial strategies, budgets, and capital outlay.

CHP 635. Managed Care, 3 Credits.
This course provides the student all the basic information needed to learn critical concepts of managed care. It explores topics ranging from the roots of managed care to types of managed care organizations, negotiating and contracting for services, controlling utilization and using data reports in the management of managed care organizations. In addition, the course addresses the future of managed care in the turbulent, dynamic health care environment.
CHP 637. Issues In Health Care Administration. 3 Credits.
This course explores current issues/trends faced by health care/institutions in the constantly evolving health care environment. Topics such as the impact of shift in service delivery from inpatient to outpatient care, development of multihospital systems and hospital alliances, prospective payment systems, retrospective payment systems and many other critical issues will be addressed.

CHP 640. Statistical Reasoning for the Health Professions. 3 Credits.
This course introduces the application of quantitative reasoning through the use of fundamental concepts in statistics and quantitative analyses in health care. Main topics include univariate, bivariate and multivariate procedures appropriate with parametric and non-parametric data. Related topics include: sampling distribution, statistical inference, and hypothesis testing.

CHP 646. Epidemiology. 3 Credits.
This course examines epidemiology as a method for viewing inborn community health problems and as a body of knowledge derived from this method. Skills in using epidemiology as a method and as knowledge to solve community health problems will be included.

CHP 651. Public and Community Health Administration. 3 Credits.
A review of the principles and practice of administering public and community health organizations and programs at federal, state and local levels. Constitutional, statutory and administrative bases for organizing and conducting public and community health programs will be discussed.

CHP 669. Practicum. 1-6 Credits.
Field experience. The student is provided an opportunity to apply academic philosophy, theory, and principle during a period of supervised practice.

CHP 690. MSCH Comprehensive Exam. 0 Credits.
The Master of Science in Community Health Comprehensive Examination offers the student an opportunity to synthesize the learning experience of the graduate program and demonstrate mastery of program outcomes. The student must receive a grade of pass on the comprehensive exam to successfully complete the MSCH degree.

CHP 695. Topics in Community Health. 1-3 Credits.
This course provides the opportunity for the study of selected topics in community health, under the supervision of a faculty member. Prerequisites: permission of the instructor.

CHP 697. Readings in Community Health. 1-3 Credits.
This course provides an opportunity for advanced investigations of selected issues/concerns/trends in community health, under the supervision of a faculty member. It may be taken by students who wish to pursue topics not covered by regularly scheduled courses. Prerequisites: permission of the instructor.

CHP 698. Thesis Research. 1-6 Credits.
Devoted to research, writing of the thesis and scheduled conferences with the candidate's advisor and thesis committee. Student must submit an acceptable written thesis demonstrating knowledge of problem selection, data classification, analysis and interpretation and defend it.

CHP 699. Thesis Research. 1-6 Credits.
Devoted to research, writing of the thesis.

CHP 711. Health Care Research. 3 Credits.
This course is a conceptual approach to selection and application of univariate, bivariate and multivariate statistical techniques in health research data analysis. Emphasis is placed on handling large data sets and the use of a computer for manipulation of quantitative data.

CHP 715. Decision Analysis in Health Care. 3 Credits.
This course is a conceptual approach and teaches students the art and science of decision making. It covers expected utility theory, decision tree analysis, cost benefit analysis, and the psychological aspects of the decision-making process in the context of health policy research. (cross listed with HLSC 815).

CHP 720. Health Care Delivery Systems. 3 Credits.
This course provides the student with an opportunity to analyze the American health-care system. Like any other system in our society, the health care system is composed of complex organizational dynamics and structures which predicate the interaction between the major components of the system: personnel who provide service; institutions in which care is provided; financing mechanisms that pay for care; and the government which attempts to regulate it. This course is designed for in-depth analysis and synthesis of all aspects of health care delivery with an emphasis on improving the delivery and access to care.

CHP 750. Educational Processes for the Health Professional. 3 Credits.
The teaching/learning process is the focus of this course for application to the many teaching roles which the health professional faces. The course is designed to meet the needs of the health professional in the areas of patient instruction, educational programs, and continuing education. The course is designed to assist students in identifying and gaining proficiency in the application of a variety of skills utilized by the health professional in designing, organizing, coordinating and evaluating health-education programs.

CHP 764. Health Economics. 3 Credits.
This course introduces economic analysis in health, health care, and health policy. It aims to provide the background of using economic approaches to understand the behaviors of consumers, producers, and insurers in the health care market. Main topics include economic determinants of health, supply and demand for medical care and insurance.

CHP 772. Policy and Politics of Health. 3 Credits.
The course enables the student to develop a systematic and analytical framework for understanding health care policy issues. The policy process is covered in detail. Timely policy issues are also discussed.

CHP 773. Developing Grants and Contracts in Health Professions. 3 Credits.
Designed as a "hands-on" approach in effective grantsmanship, this course will guide the student from the identification of potential funding sources through proposal development. Highlights include program planning, nonprofit status, governmental/foundation corporate trends, local resources and grants administration.

CHP 775. Comprehensive Health Planning. 3 Credits.
CHP 787. Legal Aspects of Health Services. 3 Credits.
This course covers legal aspects related to health services, including regulatory processes and implementation, and policy choices.

CHP 795. Topics. 1-3 Credits.
Designed to provide the student with an opportunity to study independently or in small groups and investigate specific topics of current interest in the health services.

CHP 998. Master's Graduate Credit. 1 Credit.
This course is a pass/fail course for master's students in their final semester. It may be taken to fulfill the registration requirement necessary for graduation. All master's students are required to be registered for at least one graduate credit hour in the semester of their graduation.

CHP 999. Doctoral Graduate Credit. 1 Credit.
This course is a pass/fail course doctoral students may take to maintain active status after successfully passing the candidacy examination. All doctoral students are required to be registered for at least one graduate credit hour every semester until their graduation.

ENVIRONMENTAL HEALTH Courses
ENVH 501. Occupational Health. 3 Credits.
An introduction to the industrial environment relative to health problems and the etiologically related agents.
ENVH 502. Environmental Health Administration and Law. 3 Credits.
A review of the concepts and practice of administering environmental health control programs within agencies at the federal, state and local levels. The principles of administration and leadership of programs in the private sector are also discussed. The constitutional, statutory and administrative law bases for organizing and conducting such programs and developing environmental policy as well as the legal implications of enforcement will be addressed. A review of all major environmental statutes and their agencies that enforce them will be addressed.

ENVH 506. Principles of Occupational Safety and Health. 3 Credits.
A broad overview of the field of safety. A study of the factors influencing the occurrence of accidents and incidents is set in the context of safety legislation, current issues in the practice of safety and the ethical and professional responsibilities of the safety practitioner. The course also includes discussions of product safety, fire prevention and protection systems safety and human elements in loss prevention.

ENVH 507. Occupational Safety Standards, Laws and Regulations. 3 Credits.
A review of the important Occupational Safety and Health Standards and Codes with particular emphasis on application of these codes to typical working situations. Governmental enforcement methodologies are also discussed.

ENVH 520. Communicable Diseases. 3 Credits.
An in-depth study of the communicable disease processes as they pertain to environmental sources. A detailed discussion of specific communicable diseases that are manifested by various environmental etiologic agents. Various environmental control measures to prevent the incidence of communicable diseases are presented.

ENVH 521. Food Safety. 3 Credits.
A comprehensive study of food and milk production, processing and preservation and controls exercised for the prevention of foodborne illnesses and spoilage.

ENVH 522. Water and Wastewater Technology. 3 Credits.
Introduction to water quality management and wastewater treatment technology. Topics include the effect of organic, inorganic and thermal pollutants in water quality streams, waterborne diseases, monitoring concepts, methods of water quality management, regulatory considerations, theory and application of wastewater treatment concepts, wastewater characterization, and treatment methods and disposal methods.

ENVH 523. Vector-Borne Diseases and Their Control. 3 Credits.
Vector-borne diseases affect the health and well-being of humans and other animals in a wide variety of ways. Arthropod vectors (e.g., mosquitoes, filth flies, ticks and related groups) transmit numerous debilitating infectious diseases that oftentimes impose significant burden on healthcare systems. This course provides insight on the ways in which arthropods impact global health and economic growth through the diseases they transmit.

ENVH 524. Residential and Institutional Environments. 3 Credits.
A study of the physical aspects of housing and institutions as they relate to human health and well-being. Coverage is also given to infection control in health-care facilities.

ENVH 525. Occupational Safety and Health Program Management. 3 Credits.
The establishment, implementation and maintenance of occupational safety and health programs. Paradigms of safety, techniques for safety training and creation of value for safety among business managers and employees are emphasized.

ENVH 526. Physical Hazards and Their Control. 3 Credits.
An in-depth examination of the varied types of physical hazards in the work environment and the methods of prevention, recognition and control.

ENVH 538. Environmental Emergencies and Disasters. 3 Credits.
This course uses a multi-disciplinary approach and draws on theory, case studies, research, and field experience to examine the global problem of environmental emergencies and disasters. Particular attention is devoted to the public health challenges posed by chemical and radiological contamination situations. Students discuss contemporary issues and controversies, complete a project exploring current issues in the field, and spend time working in teams to craft solutions to key emergency preparedness problems.

ENVH 540. Principles of Ergonomics. 3 Credits.
An introduction to the terminology, concepts and applications of physiology, anthropometry, biomechanics and engineering to workplace and work methods design. Emphasis will be given to workplace design and work methods for job safety and health.

ENVH 541. Industrial Hygiene. 3 Credits.
An in-depth study of the chemical and physical agents responsible for occupational illness and the methods used for their measurement, evaluation and control.

ENVH 542. Industrial Hygiene Sampling Methods. 3 Credits.
An introduction to the detection and sampling alternatives used for estimating worker exposure to hazardous chemical, physical and biological agents in the occupational environment. Field and class activities are intended to simulate select occupational exposure situations and provide a basis for selection of the best evaluation techniques. Emphasis is on quantitative and qualitative methods typically used when estimating employee exposure to hazardous agents and the subjective decision making process. Pre- or corequisite: ENVH 541 or permission of the instructor.

ENVH 545. Air Pollution and Its Control. 3 Credits.
The study of air pollution in relation to air quality criteria, pollutant production, atmospheric evolution, measurement and control techniques.

ENVH 546. Physical Hazards Laboratory. 2 Credits.
Use and application of sampling methods and equipment for measurement of physical hazards in the work environment. Includes aspects such as ergonomics, noise, vibration and radiation. Prerequisites: ENVH 541 or permission of the instructor.

ENVH 548. Epidemiology and Biostatistics. 1-3 Credits.
An introductory course in the principles and practices of epidemiology and the application of statistical and mathematical design and analysis of health research studies for the understanding and control of population health and disease with emphasis on environmental applications.

ENVH 561. Hazardous Waste Management. 3 Credits.
Description of the hazardous waste problem, the fundamentals of the chemistry involved with hazardous waste transport, methods of identification, assessment, control, and disposal of toxic and hazardous waste are discussed. In addition the relevant legal statutes, risk assessment emergency response and case studies are presented. Introduction to the toxicological effects of exposure to hazardous waste is discussed.

ENVH 565. Hazardous Materials Management. 3 Credits.
The management of hazardous materials includes a wide array of interlocking regulations addressing use, manufacturing, exposure, storage, shipping and disposal. A life cycle review of hazardous materials highlighting best practices and legislation is presented. Useful in preparation for CHMM examination.

ENVH 570. Industrial Environmental Management. 3 Credits.
Course addresses day-to-day technical and management aspects of environmental compliance, as well as regulatory issues faced in industrial applications. Includes audits and inspections, air and water pollution and hazardous waste.

ENVH 595. Topics in Environmental Health. 1-3 Credits.
Advanced study of selected topics.

ENVH 598. Independent Study in Environmental Health. 1-3 Credits.
An opportunity is afforded students to undertake independent study under the direction of a faculty member. Prerequisites: permission of the Program Director.
ENVH 600. Principles of Environmental Health Science and Protection. 3 Credits.
An introduction to the chemical, physical and biological factors affecting human health and well being. The emphasis is on the application of controls to prevent disease and maximize environmental quality. (Cross-listed with CHP 602).

ENVH 602. Environmental Health Law and Policy. 3 Credits.
A review of the concepts and practice of administering environmental health control programs within agencies at the federal, state and local levels. The principles of administration and leadership of programs in the private sector are also discussed. The constitutional, statutory and administrative law bases for organizing and conducting such programs and developing environmental policy as well as the legal implications of enforcement will be addressed. A review of all major environmental statutes and their agencies that enforce them will be addressed. Prerequisites: MPH 610 and MPH 613.

ENVH 603. Environmental Epidemiology. 3 Credits.
Collection methods, analysis and interpretation of epidemiologic data with environmental and occupational disease emphasis.

ENVH 610. Food Microbiology. 4 Credits.
An in-depth examination of requirements for growth of food borne disease organisms. Includes hazard analysis and critical control point methodology.

ENVH 611. Water Pollution Control. 4 Credits.
A study of the chemical, physical and biological causes of surface and groundwater pollution. Emphasis is given to onsite wastewater systems and protection of groundwater supplies.

ENVH 621. Advanced Toxicology 1. 4 Credits.
An in-depth study of the adverse interaction of environmental and occupational chemical agents with humans. Students critically review articles from the current toxicology literature with regard to scientific content, methods and conclusions. Each student presents at least two reviews during the semester. Prerequisites: ENVH 543.

ENVH 632. Environmental and Occupational Health Risk Assessment. 3 Credits.
This course is an introduction to quantitative and qualitative risk analysis and examines the fundamental aspects of risk, focusing on environmental, occupational, and public health risks. Hazard identification, exposure assessment, dose-response evaluation, risk characterization, and risk communication are emphasized.

ENVH 643. Principles of Toxicology. 3 Credits.
An introduction to the fundamentals of toxicology with emphasis on the interaction of environmental and industrial chemicals with humans are studied. Exposure, dose response, kinetics and distribution of toxicants, metabolism of toxic agents, factors that affect toxicity and introductory chemical carcinogenesis are discussed.

ENVH 695. Selected Topics in Environmental Health. 1-3 Credits.
The study of selected topics that may not offered regularly. Special topics will appear in the schedule of classes each semester.

ENVH 722. Control of Hazards in the Workplace. 3 Credits.
Advanced methods for evaluation and control of hazards in the workplace.

ENVH 795. Selected Topics in Environmental Health. 1-3 Credits.
The study of selected topics that may not be offered regularly. Special topics will appear in the schedule of classes each semester. Prerequisites: permission of the instructor.

ENVH 822. Control of Hazards in the Workplace. 3 Credits.
Advanced methods for evaluation and control of hazards in the workplace.

ENVH 895. Selected Topics in Environmental Health. 1-3 Credits.
The study of selected topics that may not be offered regularly. Special topics will appear in the schedule of classes each semester. Prerequisites: permission of the instructor.

ENVH 998. Master's Graduate Credit. 1 Credit.
This course is a pass/fail course for master's students in their final semester. It may be taken to fulfill the registration requirement necessary for graduation. All master's students are required to be registered for at least one graduate credit hour in the semester of their graduation.

Courses

HEALTH SCIENCES Courses

HLSC 701. Introduction to Health Services. 3 Credits.
HLSC 702. Health Management. 3 Credits.
This seminar will provide students with an understanding of health care organizations and effective management. Particular attention will be given to the issues of access, cost and quality.

HLSC 705. Interprofessional Study Abroad on Global Health. 1-3 Credits.
This study abroad service learning course will introduce the student to the political, social, cultural, and ethical issues involved in prevention and health promotion globally. Students will travel another country and learn the incidence/prevalence, morbidity/mortality, and identified public health problems in specific regions and countries.

HLSC 706. Leadership in Complex Systems and Organizations. 3 Credits.
This course will focus on the leadership that comprises two types: informal and formal leadership. Competencies will include communication, knowledge of health care environment, leadership, professionalism, and business skills.

HLSC 707. Informatics and Healthcare Technology. 3 Credits.
This course will cover the use of data in health care as well as other informatics applications. Students will explore healthcare technology used to improve the delivery and evaluation of care.

HLSC 708. Evidence-Based Management for Quality Healthcare. 3 Credits.
The focus of the course is on the development of system processes to ensure quality health care. The evidence-based model will be applied to organizational systems.

HLSC 709. Multidisciplinary Approach to Health Services Research. 3 Credits.
HLSC 710. Research Design and Application. 3 Credits.
HLSC 712. Qualitative Research Methods. 3 Credits.

HLSC 713. Measurement of Health Phenomena. 3 Credits.
An overview of measurement theory with emphasis on the development, testing, and refinement of norm- and criterion-referenced data collection instruments for health-related research.

HLSC 714. Theory in the Health Sciences. 3 Credits.
HLSC 716. Competitive Resource Design and Utilization. 3 Credits.
This course focuses on the competitive design and utilization of organizational and human resources. Emphasis will be placed on the strategic process to ensure that resources are applied in ways to ensure high-quality care and excellent patient outcomes. The course will cover the business models for effective financial and personnel management of healthcare organizations. Analysis of the costs and quality of care will be performed.

HLSC 746. Epidemiology. 3 Credits.
This course examines epidemiology as a method for viewing inborn community health problems and as a body of knowledge derived from this method. Skills in using epidemiology as a method and as knowledge to solve community health problems will be included.

HLSC 751. Developmental Neonatal Physiology. 2 Credits.
This course provides an in-depth examination of human genetics, embryologic development and normal physiologic functioning of developing body systems. Mechanisms involved in cell division, gametogenesis, and inheritance patterns will be addressed. Basic genetics and epigenetics will be included. The structural and functional development of fetal systems, during critical periods, will be emphasized. Abnormalities and alterations in fetal development will be explored.
**HLSC 764. Health Economics. 3 Credits.**
Lecture 3 hours; 3 credits. This course describes the application of economic tools to analyze the operation of markets for health care and insurance. Topics covered include the consumption and costs of health care in the United States, the viewpoints of players in the health care market, and an overview of both supply and demand analysis and cost effectiveness analysis. Complexities of economics unique to health care will be detailed. Further, students will employ these principles in several case studies of current and classic issues in health economics. (Cross-listed with CHP 764).

**HLSC 768. Practicum in Global Health. 2 Credits.**
Global health related field placement (112 hours).

**HLSC 771. Foundations of Advanced Neonatal Care. 3 Credits.**
The foundations of advanced neonatal care course provides the theoretical and practical knowledge for the neonatal nurse practitioner or physician assistant to manage the health care needs of the neonate in the newborn nursery or level II neonatal intensive care unit.

**HLSC 772. Policy and Politics of Health. 3 Credits.**
This course enables the student to develop a systematic and analytical framework for understanding health care policy issues. The policy process is covered in detail. Timely policy issues also are discussed.

**HLSC 773. Pharmacology for Advanced Neonatal Care. 3 Credits.**
This course offers scientific inquiry into the use of pharmacologic agents in the advanced nursing care of infants, including fetal, neonatal life, and early childhood. Pharmacokinetics, pharmacodynamics, drug use in pregnancy and lactation, pharmacologic agents used in disease prevention and treatment, drug monitoring and drug safety in the home are explored.

**HLSC 774. Advanced Neonatal Care: High Risk Management I. 3 Credits.**
This course develops the students’ ability to manage high-risk neonates. This is the second of three sequential management courses that provide the theoretical and practical knowledge for the neonatal nurse practitioner to manage the health care needs of the neonate at the highest level of nursing practice.

**HLSC 775. Advanced Neonatal Care: High Risk Management II. 3 Credits.**
An organ systems approach is used to explore the diagnosis and management of neonates requiring surgery and advanced technologies. Additional topics will include developmental follow-up of the medically fragile infant and withdrawal of life support in the NICU.

**HLSC 776. Global Health. 3 Credits.**
This course will introduce the student to the political, social, cultural, and ethical issues involved in disease prevention and health promotion globally. Specific emphasis will be on incidence/prevalence, morbidity/mortality, and identified health problems in specific regions and countries. This course will also identify international health prerogatives aimed at improving health status through education and intervention.

**HLSC 778. Global Environmental Health. 2-3 Credits.**
The goal of this course is to guide students with a public health perspective to develop skills to identify and analyze environmental health problems globally. It is designed to provide knowledge on recognizing and evaluating major environmental health issues and risk factors in developed and developing countries by using group discussions and real-life case studies.

**HLSC 780. Monitoring & Evaluating Global Health Programs. 2 Credits.**
This course familiarizes students with the basic concepts, issues, theories, approaches and models in evaluation in a global public health context. Students in this course will begin to develop technical skills to conceptualize and design evaluations of global public health programs or projects. These practices include determining which evaluation approach to use in a given context, developing an evaluation plan and appropriate evaluation questions, determining the data needed to answer the evaluation questions and establishing reporting processes to provide information to program developers.

**HLSC 782. One Health, One Medicine. 2 Credits.**
This course will teach students the applications of multidisciplinary competencies towards solving human health challenges. The course will identify all areas of global health issues that require human, veterinary and environmental applications for solutions. One Health One Medicine is an important course for all students in Health or Environmental Sciences that are called upon to integrate multidisciplinary competencies as part of their education and career experiences.

**HLSC 784. Key Competencies for Co-creating Sustainable Futures. 2 Credits.**
This course is based in an ongoing NSF sponsored research project called the Sustainable Futures Protocol (SFP), which seeks to define and develop the key individual and collective competencies for collaboratively generating sustainable futures across global societies. This course will explore the quantitative and qualitative research on collaborative leadership and action that best addresses the challenges of climate change mitigation, adaptation, and justice as they relate to global public health.

**HLSC 785. Issues and Opportunities in Global Health Research. 2 Credits.**
This course focuses on global health research with an emphasis on cultural, political and economic influences on health in various regions and provides students opportunities to engage in inter-professional teamwork to brainstorm problem-based issues and establish research proposals.

**HLSC 786. Leadership in Complex Systems and Organizations. 3 Credits.**
Topics in Health Sciences. 1-3 Credits.

**HLSC 787. Informatics and Healthcare Technology. 3 Credits.**
This course will cover the use of data in health care as well as other informatics applications. Students will explore healthcare technology used to improve the delivery and evaluation of care.

**HLSC 801. Introduction to Health Services. 3 Credits.**
Focuses on the complexities involved in providing health services to populations. Presents issues related to public health, community health, urban and rural health, healthy people/communities and health care delivery in traditional and non-traditional settings.

**HLSC 802. Health Management. 3 Credits.**
This seminar will provide students with an understanding of health care organizations and effective management. Particular attention will be given to the issues of access, cost and quality.

**HLSC 804. Methods of Program Evaluation. 3 Credits.**
Examination of various methodologies for designing and conducting public health program evaluation and research. Experimental, quasi-experimental and non-experimental procedures will be covered. Prerequisite: HLSC 810 or PAUP 853. Departmental approval required.

**HLSC 805. Interprofessional Study Abroad on Global Health. 1-3 Credits.**
This study abroad service learning course will introduce the student to the political, social, cultural, and ethical issues involved in prevention and health promotion globally. Students will travel another country and learn the incidence/prevalence, morbidity/mortality, and identified public health problems in specific regions and countries.

**HLSC 806. Leadership in Complex Systems and Organizations. 3 Credits.**
This course will focus on the leadership that comprises two types: informal and formal leadership. Competencies will include communication, knowledge of health care environment, leadership, professionalism, and business skills.

**HLSC 807. Health Management. 3 Credits.**
This course will cover the use of data in health care as well as other informatics applications. Students will explore healthcare technology used to improve the delivery and evaluation of care.

**HLSC 808. Evidence-Based Management for Quality Healthcare. 3 Credits.**
The focus of the course is on the development of system processes to ensure quality health care. The evidence-based model will be applied to organizational systems.
HLSC 809. Multidisciplinary Approaches to Health Services Research. 3 Credits.
Uses theory and research findings from areas such as Biology, Psychology, Sociology, Economics, Urban Studies, and Health Services to achieve an understanding of health services issues and problems. Emphasizes methods of analysis and of developing alternatives related to multidisciplinary perspectives.

HLSC 810. Research Design and Application. 3 Credits.
Emphasis is on exploring the advantages/disadvantages and uses of non-experimental, quasi-experimental, and experimental designs in health-related research with application to management, education, and clinical practice. (cross-listed with PT 810). Prerequisite: graduate-level courses in research design and statistics or permission of the instructor.

HLSC 811. Quantitative Research Methods in Health Care. 3 Credits.
An applied approach to the selection and application of bivariate and multivariate statistical techniques in health services research. Emphasis is placed on handling large data sets and the use of a computer for manipulation of quantitative data. Pre- or corequisite: HLSC 710 or HLSC 810.

HLSC 812. Qualitative Research Methods. 3 Credits.
An exploration of qualitative research methods including participant observation, ethnography and the generation of grounded theory. Individual interviews and focus group methods will be covered and historical, content analysis, phenomenological and montage approaches will also be discussed. Health related examples of published research in a variety of fields will be utilized to exemplify the methods.

HLSC 813. Measurement of Health Phenomena. 3 Credits.
An overview of measurement theory with emphasis on the development, testing, and refinement of norm- and criterion-referenced data collection instruments for health-related research. Prerequisites: graduate-level courses in research design and statistics or permission of the instructor.

HLSC 814. Theory in the Health Sciences. 3 Credits.
Introduces the philosophy of science by studying the nature and purposes of theory for the health sciences. Standards for evaluation of theories will be described. Selected theories and supporting research from the health services literature will be discussed and critically evaluated.

HLSC 815. Decision Analysis in Health Care. 3 Credits.
This course teaches students the art and science of decision making. It covers expected utility theory, decision tree analysis, cost-benefit analysis, and the psychological aspects of the decision-making process in the context of health policy research.

HLSC 816. Competitive Resource Design and Utilization. 3 Credits.
This course focuses on the competitive design and utilization of organizational and human resources. Emphasis will be placed on the strategic process to ensure that resources are applied in ways to ensure high-quality care and excellent patient outcomes. The course will cover the business models for effective financial and personnel management of healthcare organizations. Analysis of the costs and quality of care will be performed.

HLSC 820. Health Care Delivery System. 3 Credits.
This course provides the student with an opportunity to analyze the American health care system. The health care system is composed of complex organizational dynamics and structures which predicate the interaction between the major components of the system: personnel who provide service; institutions in which care is provided; financing mechanisms which pay for care; and the government which attempts to regulate it. This course is designed for in-depth analysis and synthesis of all aspects of health care delivery with an emphasis on improving the delivery and access to care.

HLSC 846. Epidemiology. 3 Credits.
This course examines epidemiology as a method for viewing inborn community health problems and as a body of knowledge derived from this method. Skills in using epidemiology as a method and as knowledge to solve community health problems will be included.

HLSC 864. Health Economics. 3 Credits.
This course describes the application of economic tools to analyze the operation of markets for health care and insurance. Topics covered include the consumption and costs of health care in the United States, the viewpoints of players in the health care market, and an overview of both supply and demand analysis and cost effectiveness analysis. Complexities of economics unique to health care will be detailed. Further, students will employ these principles in several case studies of current and classic issues in health economics. (Cross-listed with CHP 764).

HLSC 868. Internship in Health Sciences. 3 Credits.
Supervised health services field experiences or health sciences laboratory experiences. A completed research project which is publishable or presentable at a professional conference is required to complete the course.

HLSC 872. Policy and Politics of Health. 3 Credits.
This course enables the student to develop a systematic and analytical framework for understanding health care policy issues. The policy process is covered in detail. Timely policy issues are also discussed.

HLSC 873. Development of Grants and Contracts in the Health Professions. 3 Credits.
Designed as a "hand-on" approach in effective grantsmanship, this course will guide the student from the identification of potential funding sources through proposal development. Highlights include program planning, nonprofit status, governmental/foundation corporate trends, local resources and grants administration.

HLSC 875. Comprehensive Health Planning. 3 Credits.
This course emphasizes the principles and processes of program planning, including a consideration of objectives, priorities, policy choices, assessment of resources, implementation, and evaluation. The student will gain practical experience in program development by developing a planning document.

HLSC 876. Global Health. 3 Credits.
This course will introduce the student to the political, social, cultural and ethical issues involved in disease prevention and health promotion globally. Specific emphasis will be on incidence/prevalence, morbidity/mortality, and identified health problems in specific regions and countries. This course will also identify international health prerogatives aimed at improving health status through education and intervention.

HLSC 881. Dissertation Seminar. 3 Credits.
This course will assist students in developing a dissertation proposal. Steps in the research process will be reviewed as students submit drafts of their proposal for faculty and peer review. Problem formulation, integrating theoretical frameworks, preparing for human subjects review and outlining data analysis techniques for hypothesis testing will be discussed. Students will be introduced to University guidelines related to dissertations and other resources to assist them in their task.

HLSC 889. Colloquium I. 1 Credit.
This course is the first in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.

HLSC 890. Colloquium II. 1 Credit.
This course is the second in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.

HLSC 891. Colloquium III. 1 Credit.
This course is the third in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.

HLSC 892. Colloquium IV. 1 Credit.
This course is the fourth in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.

HLSC 893. Colloquium V. 1 Credit.
This is the fifth in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.
This is the sixth in a series of colloquial courses in which doctoral level students receive presentations and present research and current topics of interest in health related professions.

**HLSC 895. Topics in Health Sciences. 1-3 Credits.**
Designed to provide the advanced student with an opportunity to study independently or in small groups and investigate specific topics of current interest in health services. Prerequisites: Ph.D. standing or permission of the graduate program director.

**HLSC 897. Independent Study. 1-3 Credits.**
Individualized study selected by the student in collaboration with a faculty member. Area of study to be supervised and approved by a faculty member with the approval of the graduate program director. Prerequisites: Admission to Health Services PhD program and permission of graduate program director.

**HLSC 898. Supervised Research. 1-6 Credits.**
Supervised research on a specialized topic. Can be repeated.

**HLSC 899. Dissertation. 1-12 Credits.**
Available for pass/fail grading only. An approved research project written under the supervision of a faculty advisor, in which the student demonstrates the capacity to design and complete independent applied research. The completed project must be approved by the dissertation committee.

**HLSC 999. Doctoral Graduate Credit. 1 Credit.**
This course is a pass/fail course doctoral students may take to maintain active status after successfully passing the candidacy examination. All doctoral students are required to be registered for at least one graduate credit hour every semester until their graduation.

### Courses

#### MASTER OF PUBLIC HEALTH Courses

**MPHO 610. Introduction to Public Health Practice. 1 Credit.**
This introductory readings course provides students with an overview of the public health sector from a local, national, and global perspective. The history of public health and recent events leading to a complete transformation of service delivery are two of the topics presented.

**MPHO 611. Social and Behavioral Sciences for Public Health. 3 Credits.**
This course introduces those social and behavioral science concepts relevant to public health practice. Social and behavioral models that may influence population based health programs are emphasized with projects designed to demonstrate their use.

**MPHO 613. Environmental Sciences for Public Health Practice. 3 Credits.**
This course provides an introduction to the chemical, physical, and biological factors affecting human health and well-being. The application of controls to prevent disease and maximize environmental quality is emphasized.

**MPHO 630. Social Marketing for Health Populations. 3 Credits.**
This course examines social marketing concepts and tools for influencing health behavior change. Students learn how to design, implement, and evaluate strategies for social marketing campaigns.

**MPHO 633. Financing Healthcare. 3 Credits.**
Students will examine financial evaluation of the health care industry, the source of funds, and the effects of changing patient policies. Other topics of interest will be financial strategies, budgets and capital outlay. Cross-listed with CHP 633.

**MPHO 640. Health Disparities and Social Justice. 3 Credits.**
This course provides an introduction to the topic of global health disparities through an in-depth examination and discussion of the relationship between social injustice and inequitable health outcomes. Students will be introduced to the social and environmental determinants of health disparities and the pathways and mechanisms leading to inequitable health outcomes in vulnerable groups, as well as strategies for addressing these determinants to improve health.

**MPHO 651. Health Promotion and Education Methods and Materials. 3 Credits.**
This course covers community health methods and strategies at the individual and community levels, teaching/learning styles, learning process, group dynamics, needs assessment, health literacy, adult learning principles, and teaching roles of the health professional. This course is designed to meet the needs of the health professional in the areas of patient instruction, educational programs, and continuing education.

**MPHO 660. Healthcare Informatics. 3 Credits.**
This course examines the availability, use of interpretation of data obtained from traditional and new data systems used for population health monitoring. Included are public health surveillance systems, vital statistics, hospital discharge data, Health Plan Employer Data and Set (HEDIS), immunization information, school health data, 1996 Health Insurance Portability and Accountability Act (HIPAA), and regulatory agency data related to health.

**MPHO 661. Program Planning and Evaluation. 3 Credits.**
This course examines the application of evaluation skills for community health programs. It is designed to assist students in identifying and gaining proficiency in the skills of designing, organizing, coordinating, and evaluating health education programs.

**MPHO 669. Public Health Practicum. 3 Credits.**
This course provides students with an opportunity to engage in public health practice in the community or in a working environment. Students who have not work experience may want to consider the practicum as an elective course. Students currently employed in the public health sector may want to use the practicum as an elective to develop a work related project.

**MPHO 670. Cultural Issues in Health Promotion and Education. 3 Credits.**
This course provides an introduction for multicultural communication for health promotion and disease management. Topics to be covered include how to work collaboratively in diverse groups with an understanding of health behaviors, values, and health benefits.

**MPHO 673. Policy and Politics of Health. 3 Credits.**
This course enables the student to develop systematic and analytical frameworks for understanding health and healthcare policy issues. It will introduce the policy process, background research necessary for policy implementation, and implementation strategies.

**MPHO 680. Global Health Issues. 3 Credits.**
An examination of the political, social, cultural, and ethical issues for disease prevention and health promotion in developing countries. Students will learn to identify international health prerogatives aimed at improving health status through education and intervention.

**MPHO 686. Legal Aspects of Health Services. 3 Credits.**
This course examines the legal requirements affecting the health care industry, including a survey of the basic concepts and content in the major areas of health law, an explanation and identification of sources of legal authority, and a familiarity with legal language.

**MPHO 688. Grant Writing for Public Health Practice. 3 Credits.**
Covers issues and problems concerned with the development of grants and contracts as they relate to the health professions. The course focuses on the multiple roles of funding agencies and the importance of matching the interests of the grant seeker with the corresponding funding agency.

**MPHO 689. Capstone Project. 3-6 Credits.**
The Capstone Project must be taken as the final course for the MPH degree. In this course a student works with a faculty preceptor and a community preceptor to produce a product useful to public health practice in environmental health (e.g. a paper, a manuscript, a grant, complete an internship, a work related project). The student must also complete a portfolio containing an activity log and relevant information gathered over the course of study to demonstrate the mastery of theoretical and applied concepts.

**MPHO 695. Topics in Public Health. 1-3 Credits.**