Industrial Hygiene, M.S.

Degree Offered

- Master of Science

Nature of the Program

The industrial hygiene program is designed for students with undergraduate training in the areas of engineering, chemistry, biology, medical sciences, animal sciences or the physical sciences who have an interest in occupational and environmental health and safety.

Through this program, working professionals and full time students can obtain education in industrial hygiene with the overall goal of providing the technical competence to anticipate, recognize, evaluate and control occupational health hazards. This degree is structured to encourage participatory, collaborative and applied problem-solving strategies to address modern day occupational health issues.

Program Educational Outcomes

In order to meet the Program Educational Objectives of the Industrial Hygiene program, students must be able to meet the following educational outcomes at the time of graduation:

1. Practice Industrial Hygiene and to initiate and develop leadership roles in business, industry and/or government.
2. Continue professional development, and life-long learning.
3. Interact in society and business in a professional, ethical manner to promote occupational and environmental safety and health.
4. Be proficient in written and oral communication and to utilize people-oriented skills in individual and team environments
5. Apply the knowledge and analytical skills from Industrial Hygiene to be proficient in his or her chosen field or further professional or doctoral studies.

FACULTY

DIRECTOR

- Sergio Caporali Filho - PhD (West Virginia University)
  Professor, Occupational and Environmental Health Sciences

Admissions

Applicants to graduate programs in the industrial hygiene program are required to provide the following:

- Applicants must have earned a grade point average (GPA) of 3.0 or better (out of a possible 4.0)
- International applicants must submit proof of English language proficiency (https://graduateadmissions.wvu.edu/how-to-apply/apply-for-2020-2021/international-graduate-applicant)
- A completed application submitted to the WVU Admissions Office
- Official transcripts of all previous college course work
- ABET-ANSAC prerequisite course requirements:
  - sixty-three credit hours of approved science, mathematics, and other technical courses. Of these, at least fifteen credit hours must be junior or senior level.
  - Specific pre/corequisite course requirements include two semesters of general/inorganic chemistry and two semesters of physics.
  - On an individual basis, the faculty may identify additional pre/corequisite coursework, often including organic chemistry and biology. Applicants will be advised about their specific requirements at the time of admission.

Admission Requirements 2023-2024

The Admission Requirements above will be the same for the 2023-2024 Academic Year.

Major Code: 8419

Curriculum Requirements

A minimum cumulative GPA of 3.0 is required in all courses
A minimum of 60% of courses must be from 500 level or above

Course Requirements *

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>PUBH 659</td>
<td>Public Health Foundations</td>
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BIOS 601 Applied Biostatistics 1 4
IH&S 460 Ergonomics 3
OEHS 527 Noise Measurement and Control 3
OEHS 528 Industrial Ventilation Design 3
OEHS 620 Industrial Hygiene 4
OEHS 725 Industrial Hygiene Sampling and Analysis 4
OEHS 622 Public Health Toxicology 3
EPID 601 Public Health Epidemiology 3

Online short course: Basic Course in the Protection of Human Research Subjects - Biomedical Focus https://www.citiprogram.org/default.asp

Complete 1 of the following options: 9-11

Thesis Option (9 Hours)
- OEHS 623 Occupational Injury Prevention
- OEHS 697 Research

Written Proposal/Oral Presentation

Thesis

Final Oral or Written Examination

Coursework Option (11 Hours)
- IENG 662 Systems Safety Engineering
- OEHS 601 Environmental Health
- OEHS 685 Internship

Environmental or Safety Elective: (choose one) **
- ENVP 515 Hazardous Waste Training
- & 515L and Hazardous Waste Training Laboratory
- ENVP 555 Environmental Sampling and Analysis
- SAFM 580 Fundamentals of Environmental Management
- SAFM 470 Managing Construction Safety
- SAFM 533 Disaster Preparedness
- SAFM 534 Fire Safety Management

Final oral or written examination

Total Hours 39-41

* Students who do not hold a baccalaureate degree in industrial hygiene may be required to take a set of undergraduate courses above and beyond the minimum coursework requirements. Students must complete those courses and earn at least a “C” in each before completing the 18th credit hour in the industrial hygiene curriculum.

** All courses contributing to Environmental or Safety Elective are three hours.

Final Examination

M.S. students following the thesis option must prepare a written research proposal. The proposal must be approved by the student's AEC at least one semester prior to the final oral examination.

All students, regardless of option, are required to pass a final oral or written examination, administered by their AEC, covering the thesis and/or related course material.

Major Learning Outcomes

INDUSTRIAL HYGIENE
- An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to industrial hygiene
- An ability to formulate or design a system, process, procedure, or program to meet desired needs
- An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions
- An ability to communicate effectively with a range of audiences
• An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
• An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

BIOSTATISTICS COURSES

BIOS 601. Applied Biostatistics 1. 4 Hours.
Introduces parametric and nonparametric statistical methodology, including descriptive measures, elementary probability, estimation, hypothesis testing, confidence intervals, common nonparametric methods, and base contingency table analysis. Empirically demonstrates underlying theory. This course also introduces students to the use of statistical software to perform basic analyses.

BIOS 603. Applied Biostatistics 2. 3 Hours.
PR: BIOS 601 or BIOS 610 or PUBH 612. Addresses estimation and hypothesis testing within the context of the generalized linear model. Examines multiple linear regression, logistic regression, survival analysis, and select advanced techniques. Emphasis on applied data analysis of health care studies.

BIOS 604. Applied Biostatistics 3. 3 Hours.
PR: BIOS 603 or BIOS 610. Focus on advanced methodological tools important in public health contexts. Topics include structural equation models and hierarchical linear models (mixed models, random-effect models), categorical methods, survival analysis and clinical trials.

BIOS 605. Applied Biostatistics Capstone. 2 Hours.
PR: BIOS 601 and BIOS 602 and BIOS 603 and BIOS 604 and consent. Students will work on a dedicated data analysis stemming from their own research or the work of others, culminating in a final research paper.

BIOS 610. Biostatistical Theory and Methods 1. 4 Hours.
PR: BIOS major or permission of instructor. Students will learn the general theory underlying statistical methods. Frequentist, likelihood and Bayesian methods will be introduced for modeling and analyzing data on one and two variables. Probability distributions and basic statistical theory will be included as needed. The R programming language will be used to analyze data in addition to learning basics of statistical methods.

BIOS 611. Data Management and Reporting. 3 Hours.
Introduction to statistical software for data management and analysis. Focus is on SAS and R for data management and analysis.

BIOS 612. Biostatistical Theory and Methods 2. 3 Hours.
PR: BIOS 610. Build on concepts from BIOS 610, with an introduction to more advanced modeling and data analysis for more than two variables, and with complicated dependence structures. Probability distributions and statistical theory are introduced and developed as needed, and methods such as mixed models, time series, spatial data analysis and multivariate data analysis will be presented along with analyses of data.

BIOS 620. Applied Linear Models HS. 3 Hours.
PR: BIOS 610 or BIOS 612. This course will teach the theory and practice of regression analysis. This includes but not limited to estimation, testing, confidence procedures, the geometry of least squares, regression diagnostics and plots, modeling, model selection, polynomial regression, and collinearity.

BIOS 621. Categorical Data Analysis HS. 3 Hours.
PR: BIOS 610 and BIOS 611. Introduction to the analysis of categorized data with a Health Sciences-Epidemiologic focus: rates, ratios, and proportions; relative risk and odds ratio; Mantel-Haenszel methods; logistic regression, Poisson regression, and other models for categorical data.

BIOS 622. Analysis of Time-to-Event Data. 3 Hours.
PR: BIOS 610 and BIOS 611. Introduction to modern methods for the analysis of time-to-event data (e.g., survival, cessation, and recidivism). Theory and application are emphasized; covering survival functions, hazard rates, inference, regression, model construction, stratification, time-dependent covariates, and clinical trials.

BIOS 623. Biostatistics Careers and Skills. 2 Hours.
Focus on career options and skills needed to attain them. Lectures, seminars, collaborative research group meetings, consulting sessions, and discussions will cover topics including consulting, working in collaborative research teams, preparing for an advanced biostatistics degree, and career options. Skills emphasized are time management, computational skills, written and oral communication.

BIOS 628. Biostatistics Practicum. 3 Hours.
PR: Consent. Students will work in a collaborative setting for a minimum of 180 hours, applying sophisticated biostatistical principles and skills learned in classes to address research questions that arise in that setting.

BIOS 629. Application of Biostatistics to Public Health Data. 2 Hours.
Students will develop research question(s) pertaining to an available public health related data set, determine the public health relevance of that question, plan analyses and implement that plan, and determine public health impact of analysis results. Students will gain practical experience integrating biostatistics concepts within a public health issue.

BIOS 660. Applied Bioinformatics 1. 3 Hours.
PR: BIOS 610 and BIOS 611. Foundational methodological tools for analyzing molecular and population genetics are discussed in detail including methods for modeling genetic inheritance, linkage analysis, genetic association studies, family designs, SNPs analysis, gene interactions, and genome wide association studies.
BIOS 661. Applied Bioinformatics 2. 3 Hours.
PR: BIOS 612 and BIOS 660. The course will cover the fundamental methods that have been successfully applied in bioinformatics, such as supervised learning, unsupervised learning and multiple testing. Students will learn relevant programming languages and software.

BIOS 662. Statistics in Clinical Trials. 3 Hours.
PR: BIOS 610 and BIOS 611. Introduces concepts relevant to the design and analysis of clinical trials. Topics covered include protocol development, quality control, ethical considerations, adherence, randomization, power analysis, and interim analysis.

BIOS 663. Introduction to Meta-Analysis. 3 Hours.
An introduction to the quantitative analysis (meta-analysis) of data from systematic reviews, including (1) effect size and precision, (2) fixed versus random-effects models, (3) heterogeneity, (4) complex data structures, and (5) bias.

BIOS 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of biostatistics. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

BIOS 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

BIOS 693. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

BIOS 695. Independent Study. 1-9 Hours.
Faculty-supervised study of topics not available through regular course offerings.

BIOS 696. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

BIOS 697. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or dissertation. (Grading will be S/U.).

BIOS 698. Thesis. 1-6 Hours.
PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of student's reports, theses, or dissertations.

BIOS 700. Foundations of Modern Statistical Inference. 3 Hours.
PR: Consent. The foundations and application of advanced statistical theory used in the field of biostatistics will be presented, including likelihood theory with related estimation, asymptotic and inferential theory, and theoretical and computational procedures for missing data.

BIOS 701. Modern Statistical Inference. 3 Hours.
PR: BIOS 700 or Consent. Advanced statistical theory for biostatistics will be presented, including estimation theory, semi-parametric theory, asymptotic and inferential theory, and algorithmically based estimators and inference.

BIOS 720. Theory and Application of Linear Models. 4 Hours.
PR: BIOS 700 or Consent. This is a theoretical course in linear models for continuous responses and their applications. Topics include matrix theory, the multivariate normal distribution, multivariate quadratic forms, estimability, reparameterization, linear restrictions, estimation theory, weighted least squares, multivariate tests of linear hypotheses, multiple comparisons, confidence regions, and missing data.

BIOS 721. Advanced Categorical Data Analysis for Health Sciences. 4 Hours.
PR: BIOS 700 or consent. This course offers an advanced examination of statistical theory and application of methods for models with categorical response data; concepts include likelihood theory and application, general linear models theory and application, estimating equations and contingency table methods.

BIOS 740. Advanced Longitudinal Data Analysis. 3 Hours.
PR: BIOS 720 or consent. This course gives an advanced understanding and approach to the analysis of longitudinal data; concepts include linear mixed effects models, generalized linear models for correlated data (including generalized estimating equations), computational issues and methods for fitting models, and dropout or other missing data. Knowledge of an appropriate software package and basic matrix algebra is assumed.

BIOS 745. Advanced Application of Linear Models. 1 Hour.
PR or CONC: STAT 645 or Consent. This course offers an understanding of advanced linear models as utilized in practice. Application of linear models across a range of research areas will be emphasized, covering computational techniques, practical issues that arise in utilizing linear models, and interpretation of results.

BIOS 764. Bayesian Biostatistics. 3 Hours.
PR: BIOS 700 or consent. This course examines fundamental aspects of the Bayesian paradigm and will focus on Bayesian inferential methods with emphasis on biostatistics applications. Topics covered include: principles of Bayesian statistics; single-parameter and multi-parameter models; Bayesian linear and generalized linear models; Monte Carlo approaches to model fitting; Prior elicitation, with illustrations of a variety of computational methods.

BIOS 765. Advanced Structural Equation Models. 3 Hours.
PR: (BIOS 610 and BIOS 611) or Consent. This course will focus on advanced structural equation modeling techniques important in public health contexts. Topics include basic psychometrics, path analysis and advanced structural equation modeling techniques, using relevant software packages.
BIOS 788. Biostatistical Grant Writing. 2 Hours.
This course gives an advanced conceptual and applied understanding of writing external grants in Biostatistics. Topics include writing grants as a principal investigator and assisting others in grant-writing as a co-investigator, with a focus on NIH grants.

BIOS 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of BIOS. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

BIOS 796. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

BIOS 797. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.)

EPIDEMIOLOGY COURSES

EPID 601. Public Health Epidemiology. 3 Hours.
Examines mortality and morbidity trends, disease and injury models, data sources classification, measures of frequency and association, research design, casual assessment, data interpretation, and screening from an epidemiological perspective.

EPID 611. Concepts and Methods of Epidemiology. 3 Hours.
PR: BIOS 610. An in-depth examination of the theory of epidemiology and its application to general epidemiologic research, including problem conceptualization, sound study design, research conduct, and interpretation of findings with depth of understanding expected of masters-level students.

EPID 612. Applied Epidemiology for Public Health. 3 Hours.
PR: EPID 611. This course covers the derivation of epidemiological measures, assessment of relevant study designs, and drawing inferences from these sources of data to assess and respond to public health problems.

EPID 623. Epidemiology and Public Health Practice at the Health Department. 3 Hours.
An introduction to public health practice at the Health Department. The class will strengthen students’ perspective and understanding of the work performed by epidemiologists at local and state health departments. Each class will cover a separate area of work for the Health Department. This class will consist of lectures, discussions, case based exercises and field experiences.

EPID 625. Principles of Clinical Trials. 3 Hours.
Students will apply the core elements of clinical trials and learn to address their major challenges by critically evaluating clinical trial literature, designing original clinical trials and developing grant proposals in clinical trial research.

EPID 629. Epidemiology Capstone. 2 Hours.
The Epidemiology Capstone is the culminating experience for MPH students in epidemiology. It requires students to demonstrate their ability to synthesize and integrate the core public health and epidemiology knowledge and competencies via a paper and oral presentation. (Grading will be Pass/Fail.).

EPID 663. Public Health Surveillance. 3 Hours.
This course includes presentations and discussions of epidemiologic principles, basic statistical analysis, public health surveillance, field investigations, surveys and sampling, and epidemiologic aspects of current major public health problems in international health. The course will cover chronic and infectious diseases surveillance, and procedures and policies for data collection, compilation, and reporting. Metrics developed by the WHO will be used.

EPID 675. GIS Applications in Public Health. 3 Hours.
PR: PUBH 611 and PUBH 612. This course provides students with foundational GIS skills to access, store, manipulate, and descriptively analyze spatially referenced health data. Students will gain intermediate proficiency with ESRI ArcGIS software, and gain exposure to GIS capabilities within R.

EPID 676. Spatial Epidemiology. 3 Hours.
PR: EPID 675. The purpose of this course is to provide students with technical training in spatial epidemiology. A wide range of statistical methods and software packages for analysis of areal and point data are covered. Instruction is focused on the practical application of methodologies and concepts in spatial epidemiology in public health research.

EPID 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of epidemiology. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given colgues teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

EPID 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

EPID 692. Directed Study. 1-6 Hours.
Directed study, reading, and/or research.

EPID 695. Independent Study. 1-9 Hours.
Faculty-supervised study of topics not available through regular course offerings.
EPID 696. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

EPID 711. Methodological Issues in Design & Analysis of Cohort Studies. 3 Hours.
PR: Consent. An in-depth examination of methodological issues related to the design and analysis of epidemiologic cohort studies. Comparison of different approaches to the analysis of epidemiologic data. Investigation of the role analytic methods decisions play in determining the accuracy, validity, and meaningfulness of analytic outcomes.

EPID 712. Quantitative Methods in Epidemiology. 3 Hours.
PR: EPID 711 and BIOS 603. Applied quantitative methods essential to core training of epidemiology majors. Prepares students to conceptualize and conduct epidemiologic research using secondary database. Develops an understanding of the underlying principles, practical application, and correct interpretation of the epidemiologic results using appropriate multivariable models.

EPID 740. Gene X Environmental Interactions and Chronic Diseases. 3 Hours.
The goal of this course is to inform students about the role of environmental factors in gene expression related to complex diseases such as CVD and cancer.

EPID 766. Physical Activity Epidemiology. 3 Hours.
PR: EPID 710. This course provides an in-depth examination of the epidemiology of physical activity. The course builds upon basic epidemiological methods and explores the relationship between physical activity and chronic diseases.

EPID 769. Occupational Epidemiology. 3 Hours.
PR: BIOS 610 for MPH students and EPID 710 for PhD students. Application of epidemiology to occupational disease and injury. Occupational hazards, including concepts of exposure and dose, as well as study design considerations unique to occupational studies, especially design challenges and analytic implications, will be covered.

EPID 770. Nutritional Epidemiology. 3 Hours.
This course addresses the role of nutrition and food components in primary, secondary, and tertiary disease prevention. Through cooperative learning, students will practice critical thinking skills in the study of nutrition in chronic disease prevention.

EPID 771. Infectious Diseases Epidemiology. 3 Hours.
PR: PUBH 611 or EPID 611 or consent of the instructor. This course is designed to cover the basic epidemiological, public health, economic, surveillance, prevention and other issues related to infectious diseases. The focus includes the major infectious diseases experienced globally as well as those specific to the United States.

EPID 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of (subject matter determined by department/division/college/school offering the course). NOTE: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

EPID 791. Advanced Topics. 1-6 Hours.
Investigation of advanced topics not covered in regularly scheduled courses.

EPID 793. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

EPID 795. Independent Study. 1-9 Hours.
PR: Consent. Faculty-supervised study of topics not available through regular course offerings.

EPID 796. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

EPID 797. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U).

HEALTH POLICY, MANAGEMENT AND LEADERSHIP COURSES

HPML 593. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

HPML 601. Foundations of Health Policy. 3 Hours.
An in-depth look at the health policy process in the United States, special emphasis is taken to distinguish between public health policy, healthcare policy, and health in all policies. Additionally, students learn to differentiate between organizational policy and public policy. Attention focuses on the formation, implementation, and evaluation stages of policy.

HPML 610. Health Economics for Population Health. 3 Hours.
PR: HPML 601 and PUBH 612. Students acquire fundamental knowledge of health economics and economic approaches and methodologies to analyze critical issues in health care and health policy.
HPML 620. Health Administration and Operations Management. 3 Hours.
Introduction to elements of organizational planning, management, and structure which create a resilient, learning public health organization. Effective public health organizational leaders understand how to provide trade-offs between efficiency, security, and equity, in a manner to optimize organizational value. This course provides an overview of human resources management, strategic planning, and operations planning to develop responsive and yet robust organizations.

HPML 622. Analytic Methods for Health Policy, Management, and Leadership. 3 Hours.
PR: PUBH 612 and PR or CONC: HPML 601. Students acquire a foundation in essential evaluation approaches and methods needed as professionals in health policy, management, and leadership including policy analysis, health services research, program evaluation, and decision analysis.

HPML 623. Healthcare Finance. 3 Hours.
This course provides an overview of the financial management of healthcare organizations.

HPML 624. Advanced Issue Analysis for Health Policy. 3 Hours.
PR: HPML 601. Advanced study of the policy making process, breaking down essential components in the agenda-setting phase including problematization, claims making, policy framing theories, and media analysis. Students gain knowledge and experience in planning, executing and evaluating an agenda-setting campaign including media and policymaking components related to the social determinants of health.

HPML 626. Internship. 1-6 Hours.
(May be repeated for a maximum of 6 credit hours.) The internship provides students the opportunity to develop their practical skills and enhance professional competencies by applying the knowledge and techniques gained from their MPH coursework to public health practice.

HPML 629. Tools for Health Policy and Management Communication. 2 Hours.
PR: HPML 601. Students are provided with a set of tools utilized to analyze, predict, and communicate a variety of policy and management related tasks.

HPML 650. Professional Issues in Health Administration: Health Policy. 1 Hour.
This survey course examines foundational factors that influence and drive US public health policies. Further, this course will review the formation, implementation, and evaluation stages of policy from the past two decades.

HPML 652. Professional Issues in Health Administration: Law and Ethics. 1 Hour.
This survey course examines modern legal and ethical issues in public health. This course also examines the foundational public health practices as it relates to US law, ethics, healthcare systems, and patients.

HPML 653. Professional Issues in Health Administration: Talent and Culture. 1 Hour.
PR: Students must have completed all required core courses to fulfill the MHA degree requirements or consent. This course provides an overview of the current professional issues in management, strategic planning, and operations planning to develop responsive and robust organizations.

HPML 654. Professional Issues in Health Administration: Health Information and Management Systems. 1 Hour.
PR: Students must have completed all required core courses to fulfill the MHA degree requirements or consent. This course examines key contemporary issues and innovations in US health information and management systems to provide students with practical knowledge about the technological tools that healthcare leaders need to make informed decisions about the improvement the quality, cost, and health outcomes.

HPML 655. Health Services Project Management. 3 Hours.
Introduces the fundamentals of project management with an emphasis on the healthcare environment. Common project management tools and techniques that can be used throughout the project lifecycle to promote projects that are finished on time, within budget, and within scope are introduced. The critical importance of stakeholder management and tailoring leadership styles to project characteristics are discussed at length.

HPML 656. Management Decisions and Strategic Planning. 3 Hours.
Introduction to the principles and tools of epidemiology as applied in the field of health care administration. Specific emphasis on strategic planning and management of health service organizations.

HPML 659. Comprehensive Experience in Healthcare Management. 3 Hours.
PR: Students must have completed all required core courses to fulfill the MHA degree requirements or consent. This course provides students the opportunity to demonstrate their command of the Master of Health Administration’s core competencies through a culminating project. Additionally, this course requires students to independently synthesize and apply methods, concepts, skills and knowledge gained in previous coursework to develop, prepare, and present a substantive SWOT analysis.

HPML 660. Methods for Health Services Research 1. 3 Hours.
PR: BIOS 601 and HPML 622. Students acquire proficiency in health services research methodologies used to assess how health care services are organized, financed, assessed and delivered, and how these arrangements affect health care quality and outcomes, and population health.

HPML 661. Health Services Research Informatics. 3 Hours.
This course provides students with the applied practical understanding of and skills needed to access and use health care information systems used in performing health services research analysis.

HPML 670. Policy Analysis for Population Health 1. 3 Hours.
PR: BIOS 601 and HPML 601 and HPML 622. This course provides students an intermediate understanding of policy analysis approaches during the formation, implementation, and outcome stages of a policy’s lifespan. A wide variety of healthcare and public health policies will be analyzed.
HPML 671. Population Health Policy Analysis Informatics. 1.3 Hours.
PR: BIOS 601 and HPML 601 and HPML 622. This course provides students with the applied practical understanding of and skills needed to access and use public health and policy information systems used in performing health policy analysis.

HPML 672. Global Health Policy. 3 Hours.
Using a health equity and social justice perspective, students will examine the major health issues facing the global health community, including health disparities, and the international institutions and policies developed to address these global health challenges.

HPML 675. Healthcare and Insurance Policy: Medicaid, Medicare, and the Affordable Care Act. 3 Hours.
Students will attain a thorough understanding of Medicaid, Medicare, and other healthcare delivery systems in the United States, with special attention paid to issues of Federalism, financing, and the political nature of health insurance delivery systems. The massive Patient Protection and Affordable Care Act legislation and its effect on the healthcare system in the United States will also be examined.

HPML 680. Performance and Economic Evaluation for Public Health. 3 Hours.
This course presents methods to demonstrate the business merit and worth of public health programs or policies. These commonly used techniques include measuring business performance, developing business case arguments, and performing economic evaluations.

HPML 681. Applied Health Care Leadership. 3 Hours.
An exploration of topics related to the theory and practice of leadership and activities designed to develop effective leadership skills that can be applied in both the healthcare management profession and society in general.

HPML 682. Managing Quality Improvement in Healthcare. 3 Hours.
Introduces students to the latest healthcare quality and patient safety improvement thinking through didactic sessions, interactive exercises and case studies with direct relevance for public health practitioners, healthcare administrators or clinicians. Examines healthcare quality and patient safety from a strategic viewpoint to make healthcare administrators effective decision makers. Provides students necessary theoretical knowledge to obtain a Six Sigma green belt.

HPML 683. Ethical Leadership in Public Health. 3 Hours.
Students will explore contemporary theory on both leadership and ethics and apply these to Public Health service.

HPML 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of health policy, management, and leadership. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.).

HPML 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

HPML 693. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

HPML 695. Independent Study. 1-9 Hours.
Faculty-supervised study of topics not available through regular course offerings.

HPML 696. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

HPML 697. Research. 1-9 Hours.

HPML 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of health policy, management, and leadership. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.).

HPML 797. Research. 1-9 Hours.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH SCIENCE COURSES

OEHS 526. Ergonomics. 3 Hours.
PR: Consent. Study of physical and cognitive ergonomics of industrial and manufacturing processes. Focus will be on providing a technical foundation required to analyze, design, and develop human-technological system with a primary emphasis on the humans.

OEHS 527. Noise Measurement and Control. 3 Hours.
PR: Senior or graduate standing. Includes noise physics, effects of noise on hearing and well-being, noise exposure regulations, and engineering of noise control. Practical experience with noise dosimeters and sound level meters is provided by a field trip.
OEHS 528. Industrial Ventilation Design. 3 Hours.
PR: Senior or graduate standing. Design of industrial exhaust ventilation for contaminant control. Includes dilution ventilation, hood design, duct system design, selection of fans and air-cleaning devices, and measurement of flows and pressures.

OEHS 601. Environmental Health. 3 Hours.
A review of issues illustrating responsibilities and roles of public health work force in identifying, managing and preventing casualties from environmental causes in air, water, soil, food, pesticides, and related subjects. WV policy dilemmas.

OEHS 610. Environmental Practice. 3 Hours.
The course involves application of Public Health principles to the planning and operation of drinking water, sewage disposal, solid and hazardous waste management, air pollution and general community sanitation.

OEHS 620. Occupational and Environmental Hazard Assessment. 4 Hours.
Lecture and laboratory experience to understand occupational and environmental hazards related to the workplace. Principles from chemistry, physics and biology are used quantify exposures. This course provides an overview of various industrial hygiene concepts.

OEHS 622. Public Health Toxicology. 3 Hours.
This interdisciplinary course will survey the principles of toxicology that pertain to human health and the environment, and the integration of these principles into public health practice.

OEHS 623. Occupational Injury Prevention. 3 Hours.
This course introduces students to the problem of occupational injury. It covers the epidemiology of occupational injury and provides a critical perspective on injury causation and the strategies used to prevent occupational injury. This course is also listed as OEHS 732 - students may not count both toward degree requirements.

OEHS 625. Advanced Toxicology. 3 Hours.
PR: OEHS 622 or BIOC 531 or PCOL 547 or PHYS 743 or consent. This interdisciplinary course will provide detailed information about toxicology in the instructors areas of research.

OEHS 626. Internship. 1-6 Hours.
PR: Consent. (May be repeated for a maximum of 6 credit hours.) The internship provides students the opportunity to develop their practical skills and enhance professional competencies by applying the knowledge and techniques gained from their MPH coursework to public health practice.

OEHS 629. Capstone. 2 Hours.
This course is the culminating experience for OEHS Master's students through which they will demonstrate their ability to integrate and synthesize the MPH and OEHS competencies in relation to the occupational/environmental public health problem on which their Practice-based Experience (PBE) was focused.

OEHS 630. Public Health Biology. 3 Hours.
This course will provide students with a fundamental understanding of Public Health Biology, which comprises a wide range of concepts including: human physiology, infectious and non-infectious disease, mechanisms of disease pathology, toxicology, and population health disparities. The students will learn underlying and advanced knowledge of human physiology and its role in public health.

OEHS 665. Worksite Evaluation. 1 Hour.
PR: Public Health major, Graduate standing. Students are introduced to health and safety hazards associated with industrial operations through in-plant inspections, interaction with plant medical and safety staff, and in-class discussions.

OEHS 685. Internship. 3-6 Hours.
PR: Consent. Professional internship providing on-the-job training under supervision of a previously approved environmentalist in settings appropriate to professional objectives.

OEHS 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of occupational and environmental health sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given colleges teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

OEHS 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

OEHS 693. Special Topics. 1-6 Hours.
Study of advanced topics that are not covered in regularly scheduled courses.

OEHS 695. Independent Study. 1-9 Hours.
Faculty-supervised study of topics not available through regular course offerings.

OEHS 696. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

OEHS 697. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading is S/U).
OEHS 723. Emergency and Disaster Response. 3 Hours.
This course addresses the basics of how public health practitioners respond to disasters, develop response protocols, and perform as skillful public health leaders.

OEHS 725. Industrial Hygiene Sampling and Analysis. 4 Hours.
PR: IENG 561 and consent. Calibration and use of sampling and analytical equipment used by industrial hygienists to evaluate the work environment. Advantages and disadvantages of different equipment under various conditions. Biological monitoring as an evaluation tool.

OEHS 732. Occupational Injury Prevention. 3 Hours.
This course introduces students to the problem of occupational injury. It covers the epidemiology of occupational injury and provides a critical perspective on injury causation and the strategies used to prevent occupational injury.

OEHS 733. Organizational Theories of Injury and Disaster Prevention. 3 Hours.
This course will discuss how aspects of work organization shape workplace injury patterns and modify the risk of organizational disasters. Social and organizational theories and contemporary perspectives of safety will be presented and used to illustrate how to reduce the occurrence of work-related injuries as well as the risk of organizational disasters.

OEHS 734. Aerosols and Health. 3 Hours.
This course will give an understanding of the basic principles behind aerosol generation, measurement, mechanics and toxicity for aerosols found in the environment and their application to health effects caused by exposure to these aerosols.

OEHS 742. Outbreak Assessment. 3 Hours.
This course covers environmental and epidemiologic principles and concepts within the context of case studies associated with disease outbreaks.

OEHS 770. Molecular Diagnosis Public Health. 3 Hours.
This course gives an overview of the interdisciplinary approaches in molecular diagnosis and prognosis for personalized patient care. Knowledge of genome-wide association studies will guide hypotheses-driven experimentation and aid clinical decision-making.

OEHS 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of OEHS. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

OEHS 795. Independent Study. 1-9 Hours.
PR: Consent. Faculty-supervised study of topics not available through regular course offerings.

OEHS 796. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

OEHS 797. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.)

PUBLIC HEALTH COURSES

PUBH 501. Advanced Professional Writing. 3 Hours.
A review of English syntax and usage in professional writing; constructing and developing ideas; research and writing based on careful reading of author's instructions, using the APA style manual, using library resources, and academic honesty.

PUBH 536. Worksite Wellness. 3 Hours.
Overviews the field of health promotion in a worksite setting, offering a comprehensive introduction. Persons with interest in exploring the possibility of employment in health promotion in a worksite setting will find this course helpful.

PUBH 580. Prevention through Resilience. 3 Hours.
The principles of resilience, resiliency theories and current research, resilience and stress and the mind-body implications, recognizing and eliciting resilience and resilient outlooks and behaviors in ourselves and clients, professional and public health implication.

PUBH 581. Rural Gerontology. 3 Hours.
This course is designed to provide students with a broad understanding of current research information regarding health and social aspects of rural elderly in the United States. The course consists of lecture and class discussions.

PUBH 595. Independent Study. 1-9 Hours.
Faculty supervised study of topics not available through regular course offerings.

PUBH 601. Introduction to Community/Public Health. 3 Hours.
An introduction to the field of community/public health with an emphasis on the relationship and role of public health to other disciplines in resolving public health problems.

PUBH 605. Introduction to Global Public Health. 4 Hours.
This course identifies and explores major global issues in public health including epidemiology of infectious diseases, malnutrition, famine and water sanitation. Course may be graded Satisfactory/Unsatisfactory.
PUBH 610. Contemporary Foundations of Public Health Practice. 2 Hours.
Examines the goals and mission of public health, from its historical roots in sanitation to current efforts to improve population health. Each of the five core disciplines—biostatistics, epidemiology, health policy and management, occupational and environmental health, and social and behavioral sciences—are introduced, as are their relationships to each other. The interdisciplinary nature of the field is emphasized.

PUBH 611. Epidemiology for Public Health Practice. 2 Hours.
Examines the application of epidemiologic methods; explains ecological, environmental, biologic, genetic, behavioral, and psychological factors affecting population health; and describes national and global mortality and morbidity trends.

PUBH 612. Research Translation and Evaluation in Public Health Practice. 4 Hours.
Introduces quantitative and qualitative methods as applied to public health practice as well as methods for evaluating public health programs and policies. Emphasis is placed on translating research into practice.

PUBH 613. Public Health Program Evaluation. 3 Hours.
Examines and builds competence in the evaluation of public health programs, policies, and environment/systems change efforts to advise programmatic and funding decisions. Includes emphasis on practical application of processes and practices from the Centers for Disease Control and Prevention (CDC), the Joint Committee on Standards for Educational Evaluation (JCSEE), and the American Evaluation Association (AEA).

PUBH 617. Ethical/Legal Issues in Public Health. 3 Hours.
This course provides an opportunity for sustained reflection on the many ethical and legal issues involved in public health. Ethical and legal frameworks will be identified and applied to the analysis of critical issues.

PUBH 618. Health Services/Outcomes Research Methods. 3 Hours.
This course covers the key issues facing the health care system today and teaches the basic skills needed to evaluate health care programs addressing these issues.

PUBH 620. Building and Sustaining Public Health Capacity. 2 Hours.
Provides a theoretical and practical understanding of key factors associated with building and sustaining the institutional and organizational capacity required to achieve the mission and goals of public health. Includes discussion of key social, political, and economic determinants of health and the role of public health in eliminating health disparities rooted in structural biases, social inequalities, and racism.

PUBH 621. Public Health Prevention and Intervention. 3 Hours.
Provides students with the conceptual and practical tools used in planning, designing, implementing, and evaluating prevention and intervention programs from the perspective of multiple public health disciplines. Through reading, cooperative learning, and discussing, students gain experience in these four areas. Students also apply information learned in foundation courses.

PUBH 628. Aging Women & Culture Issues. 3 Hours.
This course will use a multi-disciplinary approach to examine the impact of gender, race/ethnicity, and culture on aging and the aging population.

PUBH 630. MPH Field Practicum. 1-6 Hours.
PR: Consent. (May be repeated for a maximum of 6 credit hours.) The MPH field practicum provides students with the opportunity to develop their practical skills and enhance professional competencies by applying the knowledge and techniques gained from their MPH coursework to public health practice.

PUBH 640. Health Systems Leadership. 3 Hours.
Addresses the foundational principles of leadership, management, and collaboration for public health and health care settings. Topics addressed include seminal applied and theoretic concepts. Prepares students to effectively lead and manage internal operations and external partnerships critical to successfully advancing the mission and goals of public health.

PUBH 641. Systems Thinking in Public Health Practice. 2 Hours.
Application of systems thinking tools to a range of public health issues. Using team-based and inter-professional approaches, theory and data are employed to identify how public health problems emerge, map phenomenon, and recommend appropriate public health intervention at multiple levels. Includes addressing the identification of and effective communication with potential partners throughout diverse communities and systems.

PUBH 645. Fundamentals of Gerontology. 3 Hours.
This course introduces students to a broad spectrum of topics and issues related to aging by drawing upon several core disciplines and their contributions to the corpus of gerontological knowledge and research.

PUBH 646. Public Policy of Aging. 3 Hours.
Analysis of major policy and public programs for older adults, including Medicaid, Medicare, Social Security and the Older Americans Act. A major emphasis is placed on programs in West Virginia.

PUBH 658. Public Mental Health. 3 Hours.
Students apply principles and methods of general epidemiology to the study of mental disorders. Provides updated scientific information regarding the epidemiology and risk factors of major psychiatric disorders such as anxiety, mood, psychotic, personality, drug and alcohol use disorders and the increased prevalence of mental disorders, cost of mental health care, and its burden on society. (co-list with 458).

PUBH 659. Public Health Foundations. 3 Hours.
Examines the history of public health, from its roots in sanitation to current efforts to broadly improve population health. Each of the five core disciplines, epidemiology, biostatistics, environmental health, social and behavioral sciences, and health policy and management receives attention. Quantitative and qualitative research designs are covered as well as infectious diseases, tuberculosis, and risk management.
PUBH 662. Clinical Research Methods and Practices. 3 Hours.
Students learn research techniques for application to a wide variety of cardiovascular, neurological, trauma and social services emergency care, conduct real-time clinical research, and interact with patients/potential study subjects in the Emergency Department. (Also listed as CHPR 440; students may not count both PUBH 662 and CHPR 440 toward degree requirements.).

PUBH 663. Dismantling Structural Racism in Public Health. 3 Hours.
A basic tenet of this course is that race and racism are responsible for the excess burden of morbidity and mortality for Black and Brown people in the US and are rooted in what students have historically been taught are social determinants of health. The course will cover historical events and contemporary movements.

PUBH 660. Health-Based Leadership. 3 Hours.
PR:CHPR 635 or equivalent. Gain personal understanding, knowledge, and growth in the human dimensions of leadership: developing rapport, trust, teamwork, and mentoring; managing tone and facilitating problem situations; evaluating systems and leading system change; articulating vision, mission and strategy.

PUBH 685. Internship-Public Health Practicum. 1-5 Hours.
The internship provides the students with the opportunity to develop their practical skills and enhance professional competencies by applying the knowledge and techniques gained from their MPH coursework to public health practice.

PUBH 686. Occupational Medicine Practicum. 5 Hours.
This course provides occupation medicine residents with the opportunity to develop practical skills and professional competencies by applying the knowledge and techniques gained from their MPH and occupational medicine coursework to public health practice.

PUBH 687. Practicum Proposal. 2 Hours.
PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and (PUBH 691E or CHPR 634). A structured, faculty-supported process for developing a proposal for the 300-hour practice and theory-based practicum.

PUBH 688. MPH Practicum Report. 3 Hours.
PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and PUBH 687 and PUBH 689 and (PUBH 691E or CHPR 634). Provides students with the opportunity to report the results of their practicum projects to others via a professional paper and presentation.

PUBH 689. Practicum. 3 Hours.
PR: PUBH 611 and PUBH 630 and PUBH 650 and PUBH 660 and PUBH 687 and PUBH 689 and (PUBH 691E or CHPR 634). Implementation of the practicum proposal; a planned, supervised, and evaluated public health-oriented experience encompassing 300 hours of activity reflecting public health practice and theory. Students are required to take 3 credit hours of the practicum but may spread credits among semesters.

PUBH 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of public health. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

PUBH 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PUBH 693. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

PUBH 695. Independent Study. 1-9 Hours.
Faculty supervised study of topics not available through regular course offerings.

PUBH 696. Graduate Seminar. 1-3 Hours.
PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PUBH 697. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project or a dissertation. (Grading is S/U).

PUBH 698. Thesis or Dissertation. 1-6 Hours.
PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of students’ reports, theses, or dissertations.

PUBH 701. Public Health Grant Writing. 3 Hours.
This course addresses various components of the grant writing process, including collaboration, funding sources, proposal preparation, and grants management for health professionals. Students will benefit from having a research methods course.

PUBH 703. Social and Behavioral Measurement. 3 Hours.
Theory and development of effective tools for measuring social and behavioral public health phenomena. Students will learn how to find, construct and analyze effective social and behavioral measurement instruments.

PUBH 705. Injury Control Research Methods. 3 Hours.
PR: PUBH 660 or equivalent and PUBH 611 or equivalent. Evidence-based approach to increasing the knowledge and methodological skills necessary for basic injury (unintentional and intentional) control research.
PUBH 706. Current Research Issues. 2 Hours.
The purpose of this course is to utilize research-based discussions to stimulate a unique information gathering environment of current research and investigation.

PUBH 707. Applied Multivariable Statistics. 3 Hours.
Basic theory and application of survival analysis, multivariate analysis of variance (MANOVA) and exploratory factor analysis.

PUBH 766. Medical Toxicology. 2 Hours.
This course introduces healthcare providers to the clinical aspects of toxicology, including the evaluation and treatment of individuals and populations with potential toxic exposures.

PUBH 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of public health. Note: this course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be P/F.).

PUBH 791. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PUBH 795. Independent Study. 1-9 Hours.
Faculty-supervised study, reading, or research.

PUBH 796. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

PUBH 797. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

SOCIAL AND BEHAVIORAL SCIENCES COURSES

SBHS 601. Social and Behavioral Theory. 3 Hours.
The focus of this course is on the role of individual behavior in attaining health. Integration of the concepts of health education and behavioral science to facilitate changes in health behavior is addressed.

SBHS 610. Public Health Research Methods. 3 Hours.
Provide students with the practical skills necessary to read, understand, critique, and contribute to the public health literature. Emphasis is placed on common research methods used in public health research.

SBHS 611. Community Assessment. 3 Hours.
Provides students with the knowledge and skills needed to conduct meaningful community needs assessments to improve a community’s health. The course will cover various community health topics including the nature of health and its varied social determinants, the use of quantitative and qualitative methods of data collection methods, and data analysis.

SBHS 615. Intervention Design. 3 Hours.
Focuses on the utility of social and behavioral science theories as tools to confront public health problems, understand the behavior change process, and develop and implement interventions to address these problems at the intrapersonal, interpersonal, organizational, and community levels. Students create an intervention program plan informed by theory as a skills application experience.

SBHS 616. Introduction to Public Health Interventions for Social and Behavioral Scientist. 4 Hours.
Introduction to the process of planning, developing, implementing and evaluating an effective public health intervention. Students learn tools and strategies commonly associated with excellence in the discipline in order to meet an important health need or concern relevant for a local community group.

SBHS 617. Community Engagement and Advocacy in Public Health. 2 Hours.
Addresses the roles of community engagement and advocacy as essential tools to mobilize organizational and social change. Through lecture, discussion, case studies, self-assessment, and experiential exercises, students develop the knowledge and skills necessary to engage and empower communities through participation and advocacy.

SBHS 619. Intervention Planning & Design. 3 Hours.
PR: SBHS 611 and SBHS 616. This course focuses on the utility of social and behavioral science theories as tools to confront public health problems, understand the behavior change process, and how to develop and implement interventions to address these problems at the intrapersonal, interpersonal, organizational, and community levels. Students create an intervention program plan informed by theory as a skills application experience.

SBHS 620. Implementing and Managing Public Health Programs. 3 Hours.
This course provides students with conceptual and practical tools used for implementing and managing health promotion programs. Critical elements include learning to implement theoretically sound intervention programs with high levels of program fidelity; effectively engaging and managing human, financial, and community resources; and identifying and responding to commonly occurring opportunities and challenges. Course methods emphasize cooperative and experiential learning.

SBHS 621. Grant Writing for Public Health Practice. 1 Hour.
This course covers the skills and techniques necessary for writing successful grant proposals tailored to foundations.
SBHS 629. Capstone Course. 2 Hours.
This is the culminating experience for social and behavioral sciences majors in the MPH program and requires students to demonstrate their capacity to synthesize and integrate the core and SBHS departmental competencies via a paper and poster.

SBHS 630. Foundations of Wellness. 3 Hours.
Wellness is examined as a component of health promotion. A wellness lifestyle is fundamental to promoting a holistic wellness concept. Quality-of-life issues and programs are explored for a variety of audiences.

SBHS 660. Survey Research Methods. 3 Hours.
This course presents scientific knowledge and practical skills used in survey research. Focus is on question construction and development, questionnaire design, sampling and surveying modes, interviewing techniques, and survey data analysis.

SBHS 661. Qualitative Research Methods. 3 Hours.
Introduces students to qualitative research methods and study designs. Includes critiques of qualitative study literature, student-driven studies using various types of study designs and how to analyze and report the results of qualitative studies. (Also listed as SBHS 761 - students may not count both this course and 761 toward degree requirements.).

SBHS 663. Advanced Evaluation in Public Health. 3 Hours.
PR: (BIOS 601 and SBHS 613 and EPID 617) or consent. Advanced topics will include the use of logic models, innovative approaches in evaluation, analyzing and interpreting evaluation data, the role of evaluation in shaping policy, and developmental evaluation. Didactic instruction and experiential learning will be emphasized.

SBHS 664. Public Health Advocacy. 3 Hours.
The course will introduce students to advocacy as an important tool to mobilize social and organizational change through education and community support. The course will train students to develop effective advocacy strategies, present those strategies through written and oral communication, and refine their professional skills. This course requires some amount of travel for course related activities.

SBHS 665. Grant Writing for Public Health Practice. 3 Hours.
PR: SBHS 601 and (SBHS 613 or SBHS 612). This course addresses skills and techniques necessary for writing successful grant proposals for professionals in public health agencies. This is a writing intensive course focused on grant writing and evaluation of social and behavioral based health promotion and disease prevention programs and interventions and is specifically tailored for the public health practice workforce.

SBHS 690. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of social and behavioral sciences. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

SBHS 691. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

SBHS 693A. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.

SBHS 695. Independent Study. 1-9 Hours.
Faculty-supervised study of topics not available through regular course offerings.

SBHS 696. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

SBHS 697. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. Grading will be S/ U.

SBHS 698. Thesis or Dissertation. 1-6 Hours.
PR: Consent. This is an optional course for programs that believe that this level of control and supervision is needed during the writing of the students' reports, theses, or dissertations.

SBHS 711. Research Translation for Health. 3 Hours.
PR: SBHS 610. Principles, theories, and evidence-based methods of knowledge and research translation for health are discussed to facilitate student competence for translating research discoveries into policies and practices that promote health and prevent disease.

SBHS 715. Intervention Design. 3 Hours.
This course will provide students with the conceptual and practical tools used in planning, designing, implementing, and evaluating health promotion programs. Through reading, cooperative learning, and discussing, students will gain experience in these four areas. Students will also apply information learned in foundation courses.

SBHS 760. Survey Research Methods. 3 Hours.
This course presents scientific knowledge and practical skills used in survey research. Focus is on question construction and development, questionnaire design, sampling and survey modes, interviewing techniques, and survey data analysis. (Also listed as SBHS 660. Students may not count both SBHS 760 and SBHS 660 toward degree requirements.).
SBHS 761. Qualitative Research Methods. 3 Hours.
This course will introduce students to qualitative research methods, including the various types of study design. The course will include critiques of qualitative studies in the relevant research literature as well as student-driven studies using various types of study designs. Students will also learn about analyzing and reporting the results of qualitative studies.

SBHS 763. Advanced Evaluation Public Health. 3 Hours.
PR: PUBH 612 and (SBHS 601 or SBHS 619). Application of scientific public health program evaluation methods. Students will learn about theory and methods of program evaluation, identification of stakeholders, data collection, preparation, analysis, reporting and conclusion.

SBHS 790. Teaching Practicum. 1-3 Hours.
PR: Consent. Supervised practice in college teaching of SBHS. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It also provides a mechanism for students not on assistantships to gain teaching experience.

SBHS 795. Independent Study. 1-9 Hours.
PR: Consent. Faculty-supervised study of topics not available through regular course offerings.

SBHS 796. Graduate Seminar. 1-3 Hours.
PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

SBHS 797. Research. 1-9 Hours.
PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Will be graded S/U).