



Graduate Program in Public Health



Graduate Program in Public Health

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About the Program

The Graduate Program in Public Health was established at Stony Brook University to train health and health-related professionals who wish to integrate the knowledge, skills, visions, and values of public health into their careers and provide leadership in the field. The Program leads to a Master of Public Health (M.P.H.) degree.

The Program aims to develop among students and professionals the values, commitment, knowledge, and technical skills necessary to advance the field of public health through application of the population health approach. The hallmarks of population health are an ecological understanding of the determinants of health and a systems approach to solving health problems; emphasis on proactively stabilizing and improving health among all populations; and insistence on accountability, evidence-based practice, and continuous performance improvement. The population health approach requires multi-disciplinary collaboration among scholars in the social, clinical, and basic sciences and the humanities; development of comprehensive, sophisticated health information systems; and use of advanced analytical tools to examine health problems and evaluate responses to them.

The population health orientation is consistent with the traditions of public health and with recent Institute of Medicine (IOM) recommendations for public health education, although it expands upon them. For example, the IOM recommends that public health: "Adopt a population health approach that builds on evidence of multiple determinants of health...(develop) appropriate systems of accountability at all levels to ensure that population health goals are met...(and) assure that action is based on evidence."

The orientation of the Program is also compatible with the educational philosophy of the Medical Center (formerly Health Sciences Center). The Medical Center opened in 1971, emphasizing the need for interdisciplinary education and collaboration and recognizing a great need for health profession-

als to work together. In this way, the founders hoped that standards and professionalism would be maintained as a result of students having the opportunity to work in a collegial atmosphere at an early stage of their education, where they would learn to respect each other and their diverse competencies.

The content of the Graduate Program in Public Health reflects the changing environment in which public health practice occurs, and recent thinking about how to respond to these changes. Public Health retains its distinct role as the specialty emphasizing prevention, with the object of its work being populations, in contrast to the historical role of medicine, dentistry, and other clinical disciplines that focus on healing, with the object of their work being individuals. "The public health professional is a person educated in public health or a related discipline who is employed to improve health through a population focus."

Since the 1980s, the three main functions of public health have been identified as assessment, policy development, and assurance. However, the knowledge and skills needed to perform these functions optimally has changed radically in light of advances in information technology and increased knowledge about the determinants of health and disease. These changes are occurring at all levels of inquiry—from the micro (genetics and microbiology) through the macro (the social sciences). Changing political, economic, demographic, and social conditions in the United States and the world make the application of new knowledge and technologies all the more important.

As one recent Institute of Medicine report states, "The beginning of the twenty first century provided an early preview of the health challenges the United States will confront in the coming decades. The system and entities that protect and promote the public health, already challenged by problems like obesity, toxic environments, a large uninsured population and health disparities, must also face emerging threats,

such as antimicrobial resistance and bio-terrorism. The social, cultural, and global context of the nation's health is also undergoing rapid and dramatic change. Scientific and technical advances, such as genomics and informatics, extend the limit of knowledge and human potential more rapidly than their implications can be absorbed and acted upon. At the same time, people, products, and germs migrate, and the Nation's demographics shift in ways that challenge public and private resources."

Recent, influential reports regarding public health education suggest ways to address the evolving training needs of public health professionals. These publications include one report issued by the Centers for Disease Control and Prevention—"Public Health's Infrastructure"—and three reports from the Institute of Medicine—"Who Will Keep the Public Healthy?"; "The Future of Public Health in the 21st Century"; and "Crossing the Quality Chasm." The recommendations in these reports challenge new public health programs to train public health leaders to be boundary spanners—able to use the new tools and knowledge available in order to formulate solutions to the complex public health problems facing us. "Public health professionals have a major role to play in addressing these complex health challenges, but in order to do so effectively, they must have a framework for action and an understanding of the ways in which they do affect the health of individuals and populations."

These recent recommendations regarding public health can be synthesized as follows. In addition to the traditional knowledge, including epidemiology and biostatistics, public health leaders need:

- An ecological understanding of the causes of poor health including, social, behavioral, environmental, occupational, demographic, policy, economic, and genetic factors as well as the interrelationship of these factors
- A thorough understanding and appreciation of the cultural heterogeneity of populations, its impact on public health initiatives, and tools to deal with issues arising from cultural heterogeneity
- A thorough understanding of the current system of addressing poor health—medical, dental, and public health—including organization, financing, regulation, accessibility, quality, effectiveness, and efficiency
- An orientation toward policy, as well as programmatic, solutions to public health problems and the skills to assess, develop, implement, and evaluate policies
- An orientation favoring evidence-based decision-making and the skills to develop evidence for public health decision making including study design and analysis of data
- An orientation favoring accountability and continuous quality improvement in public health and the skills needed to measure accountability and assess performance
- Informatics skills including application of information technology to obtain, organize, and maintain useful data for public health decision-making
- Leadership skills including the conceptual and analytical tools to prioritize problems and make sound decisions

Accreditation

The Graduate Program in Public Health is actively seeking accreditation from the Council on Education for Public Health (CEPH). The Program has been developed to meet the standards and criteria of the CEPH.

Center for Health Services and Outcomes Research

Cost control and quality enhancement remain elusive goals in the U.S. health care system. More and better evidence is required to help direct scarce health care resources to many competing uses, and to evaluate alternative strategies for promoting more cost effective care. In recognition of this need, the Graduate Program in Public Health has formed the Center for Health Services and Outcomes Research (CHSOR). The Center is a multidisciplinary research unit that combines expertise in economics, statistics, epidemiology, medicine, and other clinical disciplines to address substantive issues in health care service and delivery. As part of its research mission, the Center seeks to develop joint projects with researchers at Stony Brook University and with health organizations throughout Long Island.

Center for Public Health and Health Policy Research

Increasing knowledge about the determinants of health and illness and the most effective and efficient methods of improving health is the central aim of the Center for Public Health and Health Policy Research. This population health orientation toward health improvement leads the Center to undertake projects that stabilize, maintain, and improve the health of all populations in a cost-effective manner through evaluation, monitoring, and feedback. The emphasis on cost effectiveness requires that we ask fundamental questions about health-related expenditures including "Are health expenditures and activities having a measurable impact on population health?" "Which expenditures and activities have the biggest impact on population health?" and "Are there other activities that would improve population health more?" The Center is a multidisciplinary research unit that combines expertise in economics, statistics, epidemiology, demography, and medicine and other clinical disciplines to address these substantive issues. As part of its mission, the Center seeks to develop joint projects between researchers at Stony Brook University and other health-related organizations throughout Long Island. The Center has developed an ongoing relationship with the Suffolk County Department of Health Services to study the causes of major health problems among County residents and develop policy solutions. Areas of interest including increasing access to medical care; improving opportunities to lead a healthy lifestyle; reducing environmental risks; and establishing programs to decrease health disparities.

Admission Requirements

Although admissions requirements are rigorous, the Graduate Program in Public Health aims to develop camaraderie, cooperation, and cohesiveness among students in each cohort. For this reason, admission to the Program is during the fall semester only.

We are seeking intellectually inquisitive people from different socio-economic, educational, racial, and ethnic backgrounds who can provide special contributions to the field of public health and the Program. The Program considers the potential contribution of each applicant to the student body and the public health field. Applicants are evaluated on academic achievement, leadership potential, professional accomplishment, and personal attributes. Excellent written and oral communication skills are expected. Fluency in more than one language is not required for admission, but it is becoming increasingly desirable for the practice of public health. The Program reserves the right to limit class size in order to maintain a faculty/student ratio that ensures a high quality academic program. Therefore, Program admission is highly selective, and all qualified applicants may not be accepted.

The admissions requirements for the Program are:

- Bachelor's degree from an accredited college or university with a 3.0 GPA or better. The major must have an equivalent at the State University of New York (SUNY).
- Official transcripts from all post-secondary schools. Transcripts for all degrees earned in schools outside the U.S. or Canada must be evaluated by an agency accredited by the National Association of Credential Evaluation Services. See section on International Students for more information about this process. The requirement for evaluation of transcripts is waived for graduates of foreign medical schools with a current license to practice in the U.S.
- Proof of licensure and good standing for licensed health professionals.
- Official GRE (verbal, quantitative, and analytical) scores. Applicants can submit scores from the MCAT, DAT, or GMAT instead of the GRE. This requirement is waived for applicants who have been awarded a doctoral degree from an accredited U.S. or Canadian college or university. Persons currently employed for more than three years in the public health field may request a waiver of this requirement.
- Three references from persons who can address the applicant's capacity to provide leadership in public health and complete a course of graduate study. If the applicant is a student or has graduated within the last two years, at least one letter must be from a college or university faculty member with whom the applicant has studied. If the applicant is a member of the public health workforce, at least one letter must be from a senior administrator in the organization who is familiar with his/her work.
- Two essays, no more than 500 words each:
 Essay 1: How do your background, training, and experience prepare you for a leadership role in Public Health?
 Essay 2: Select one of the following topics: (a) Explain how the Graduate Program in Public Health and the concentration chosen will help you achieve your short-term and long-term goals; (b) Define a time in your own life when you have identified and captured an opportunity; (c) Define a unique quality you possess; or (d) How do you expect to contribute to the improvement of health in your community?

- A personal interview, if requested by the Admissions Committee.
- Any other requirements of the Graduate School not stated here.

For International Students

- International students who trained in non-English speaking schools and do not reside in an English speaking country are required to take the TOEFL exam. The expected minimum score is 250 for the Computer-Based Test or 600 for the Paper-Based Test.
- International students are required to have a course-by-course educational credential evaluation completed by an agency accredited by the National Association of Credential Evaluation Services (www.naces.org). We require using World Education Services (www.wes.org). This evaluation provides a U.S. course equivalent including semester hours earned, course content, and corresponding letter grade for all courses listed on the international applicant's transcript. This evaluation must be completed before the application can be considered.
- For more information about the requirements for international students, see:
www.uhmc.sunysb.edu/studserv/applyhsc.html
 and
www.uhmc.sunysb.edu/studserv/international.html

The Admissions Committee considers all factors including grades, GRE scores, recommendation letters, essays, prior training, and professional experience. It is a goal of the Admissions Committee to select applicants who have the academic capability, aptitude, character, personal qualities, and commitment to provide future value to society through leadership and creative contributions to the field of public health.

In addition, the Program requires that each entering student take a mathematics placement examination prior to enrollment. Also, students without a clinical background must provide certificates of completion for the following two online courses: Anatomy and Physiology 101 and Medical Terminology 101, available at www.universalclass.com. Students are admitted to the Program on the condition that these courses will be completed by the end of the first semester.

It is expected that incoming students will be computer literate and email capable, and have library skills sufficient for graduate work. For students with deficiencies in these areas, resources are available through the Health Sciences Center Library to acquire or update them, as necessary.

Credit Transfers

All core courses must be taken at Stony Brook University, unless an equivalent was taken in an accredited public health program with a grade of B or better. All concentration courses are to be taken at Stony Brook University, unless an equivalent course, with a grade of B or better, was taken at an approved graduate program and transfer of credits is approved by the student's advisor. The student must request a credit transfer and complete the necessary forms. In all respects the Graduate Program in Public Health follows Stony Brook's Transfer of Credit policy as stated in the University's Graduate Bulletin:

A maximum of 12 credits may be transferred to a master's program at Stony Brook University with the approval of the program and the Graduate School provided that they have not been used toward the satisfaction of any degree requirements here or at another institution.

Non-Matriculation Students

A maximum of nine (9) credits may be taken as a non-matriculated student in the Graduate Program in Public Health. Permission to enroll in courses must be obtained from the M.P.H. Admissions Committee. Applicants for non-matriculation status should be aware that courses taken as a non-matriculated student will not guarantee admission to the program.

M.P.H. Curriculum Overview

M.P.H. Core (24 Credits)

Course	Title	Credits
HPH 500	Contemporary Issues in Public Health	2
HPH 501	Introduction to the Research Process	2
HPH 506	Biostatistics 1	2
HPH 507	Biostatistics 2	3
HPH 508	Health Systems Performance	3
HPH 514	Epidemiology for Public Health	3
HPH 516	Environmental & Occupational Health	3
HPH 523	Social & Behavioral Determinants of Health	2
HPH 562	Data Management & Informatics	2
HPH 563	Cost Benefit & Cost Effectiveness Analysis	2

M.P.H. Culminating Experience (6 Credits)

Course	Title	Credits
HPH 580	Practicum	3
HPH 581	Capstone Seminar: Population Health Issues	3

M.P.H. Concentration (15 Credits)

Total Credit Hours for M.P.H. Program (45 credits)

Concentrations

Evaluative Sciences Concentration

The mission of this concentration is to prepare public health professionals with the analytical, research, and statistical skills necessary to benchmark and evaluate health improvement initiatives in community and health care settings. Increasingly, the health field is challenged to adopt an evidence-based approach to preventing and treating disease and disability. The concentration in Evaluative Sciences will play a critical role in meeting this challenge by providing public health professionals with the analytical, research, and statistical skills necessary to benchmark and evaluate health improvement initiatives in community and health care settings. The concentration includes courses in advanced biosta-

tistics, clinical outcomes research, demographic theory and methods, and health services research. There is a special emphasis on integrating cost effectiveness and cost benefit concepts into the curriculum so that resource allocation issues are considered.

The faculty has training in research design, implementation of research projects, and analysis of data as well as expertise in evaluating the performance of specific areas of the health care system. Faculty members study a variety of health issues including health care quality improvement, patient decision-making, and determinants of health and disease. Some work with physicians to improve clinical outcomes for patients with heart disease, cancer, asthma, and other conditions. Others work with health care administrators to increase efficiency in the use of health care resources in hospitals and other medical care settings. Some work with basic and clinical scientists to develop our understanding of how to prevent disease and disability.

Required Courses

Course	Title	Credits
HPH 555	Demographic Theory and Methods	3
HPH 560	Advanced Biostatistics	3
HPH 565	Health Services Research Applications	3
HPH 567	Clinical Outcomes Research	3

Selectives (3 credits from courses listed below. Each course may not be offered every year.)

Course	Title	Credits
HPH 510	Advanced Epidemiology	3
HPH 513	Decision-Making in Medicine & Public Health	3
HPH 517	Continuous Quality Improvement Methods	2
HPH 519	Independent Study	variable
HPH 528	Survey Research Methods	2
HPH 566	Clinical Trials	2
HPH 570	Multilevel & Longitudinal Analyses	2
HPH 646	Continuous Quality Improvement in Healthcare	3
HPH 657	Demographic Economics I	3
HPH 664	Economics of Health	3
HPH 665	Health Economics	3

Or, with approval of advisor, other research methods courses in the University may be substituted.

Community Health Concentration

The Community Health concentration prepares students for community-based work in public health. The mission of this concentration is to prepare students for community-based work in public health. Students will learn skills and knowledge related to planning, implementing, and evaluating community health improvement projects and interventions, as well as the principles of community-based participatory research. The curriculum includes courses on the theories of health behavior, and health communications, and ethical issues related to community health, as well as planning, implementing, and evaluating health programs. Students in this concentration must use their Core Selective toward the concentration.

Required Courses

(Courses from the Department of Health Care Policy and Management, School of Health Technology and Management)

Course	Title	Credits
HAS 527	Principles & Practices of Community Health	3
HAS 545	Ethics & Health Care	3
HAS 557	Planning & Implementing Health Programs	3
HAS 559	Health Behavior & Risk Reduction	3
HAS 560	Evaluation of Community Health Programs	3

Or, with approval of advisor, other community health-related courses in the University may be substituted.

Public Health Practice Concentration

The mission of this concentration is to prepare students with a clinical background for positions in public health organizations or to incorporate public health knowledge, skills, and values into their clinical practice. Students in this concentration are required to take the History of Public Health & Medicine, Planning & Implementing Health Programs Strategic Management of Public Health Organizations, Public Health Law, Demographic Theory & Methods, and Management Accounting & Financial Decision Analysis (10 credits total). The remaining 35 credits are obtained from a list of selectives from the following list of courses. Working with one of the Public Health Practice advisors, students select courses that are related to their professional goals. With the exception of students in the joint M.P.H./M.B.A. program, only persons with a clinical degree or studying for a clinical degree such as medicine, nursing, dentistry, physical therapy, physician assistant are eligible for the Public Health Practice concentration.

Required Courses

Course	Title	Credits
HPH 524	Strategic Management of Public Health Organizations	2
HPH 530	History of Public Health & Medicine	2
HPH 549	Public Health Law	2
HPH 555	Demographic Theory & Methods	3
<i>(Course from Department of Technology & Society)</i>		
HPH 660	Management Accounting & Financial Decision Analysis	3

Selectives (Select 3 credits from courses below. Each course may not be offered every year.)

Course	Title	Credits
HPH 504	Surveillance & Control of Infectious Diseases	2
HPH 505	Topics in Population Health Studies	1-3
HPH 510	Advanced Epidemiology	3
HPH 513	Decision-Making in Medicine & Public Health	3
HPH 517	Continuous Quality Improvement Methods	2
HPH 519	Independent Study	variable
HPH 528	Survey Research Methods	2
HPH 542	Introduction to Global Health	2

HPH 560	Advanced Biostatistics	3
HPH 565	Health Services Research Applications	3
HPH 566	Clinical Trials	2
HPH 567	Clinical Outcomes Research	3
HPH 568	Overview of Molecular Medicine & Genomics	2

(Courses from the Department of Health Care Policy and Management, School of Health Technology and Management)

Course	Title	Credits
HAS 545	Ethics & Health Care	3
HAS 559	Health Behavior & Risk Reduction	3

(Course from Department of Molecular Genetics & Microbiology)

Course	Title	Credits
HPH 659	Biology of Cancer	1

(Courses from School of Social Welfare)

Course	Title	Credits
HPH 620	Parameters of Social & Health Policy I	3
HPH 621	Parameters of Social & Health Policy II	3
HPH 626	Overview of Substance Abuse	2
HPH 630	Chemical Dependency in Special Populations	2
HPH 631	Cultural Competence: An Ingredient Enhancing Treatment Outcomes	2
HPH 632	Psychopathology & Psycho-Pharmacology	2
HPH 633	Childhood Sexual Abuse & Long-Term Sequelae	2
HPH 635	Seminar on Family Violence	2
HPH 636	Community Analysis & Health Promotion	2

(Course from Department of Anthropology)

Course	Title	Credits
HPH 658	Use of Remote Sensing & GIS in Environmental Analysis	3

(Courses from Department of Economics)

Course	Title	Credits
HPH 657	Demographic Economics I	3
HPH 664	Economics of Health	3
HPH 665	Health Economics	3

(Courses from Marine Sciences Research Center or Department of Technology & Society)

Course	Title	Credits
HPH 653	Introduction to Homeland Security	3
HPH 654	Nuclear Safeguards & Security	4
HPH 655	Chemical & Biological Weapons: Safeguards & Security	4
HPH 656	Risk Assessment, Regulation, & Homeland Security	4
HPH 661	Methods of Socio-Technological Decision-Making	3
HPH 662	Systems Approach to Human-	

	Machine Systems	3
HPH 671	Marine Pollution	3
HPH 672	Marine Management	3
HPH 673	Groundwater Problems	3
HPH 675	Environment & Public Health	3
HPH 676	Environmental Law & Regulation	3
HPH 684	Environmental & Waste Management in Business & Industry	3
HPH 686	Risk Assessment & Hazard Management	3
HPH 687	Diagnosis of Environmental Disputes	3
HPH 688	Principles of Environmental Systems Analysis	3
HPH 689	Simulation Models for Environmental & Waste Management	3

Or, with approval of academic advisor, other courses in the University related to the student's goals may be substituted

B.S. in Applied Mathematics & Statistics/M.P.H. Degree

The Graduate Program in Public Health offers a combined Bachelor of Science (B.S.) degree in Applied Mathematics and Statistics with the Masters of Public Health (M.P.H.) degree, with a concentration in Evaluative Sciences. Students take all required courses for their Applied Mathematics and Statistics undergraduate major, all required general education courses, and the full 45 credit M.P.H. program. Students use 12 M.P.H. credits to fulfill credit requirements for the undergraduate degree. The program is highly selective.

The B.S. in Applied Mathematics and Statistics is an excellent preparation for the M.P.H. program, particularly the Evaluative Sciences concentration, which focuses on the highly quantitative areas of biostatistics and research design. The current demand for M.P.H. graduates with quantitative skills is strong, and this combined B.S./M.P.H. program is intended to help attract talented quantitative students into the public health field. There is no similar B.S./M.P.H. degree program at any other public or private institution in New York State.

Admission to the B.S. in Applied Mathematics & Statistics/M.P.H. Degree Program

Ordinarily, students will be considered for admission into the combined B.S./M.P.H. degree program after completing their junior year of undergraduate study—either before the start of their senior year or during their senior year. Students with exceptional records may be admitted during the junior year. Students who transfer to Stony Brook after their junior year must complete one semester at Stony Brook before they will be considered for admission to this combined B.S./M.P.H. program. The admissions requirements for students entering the combined degree program are as follows:

- Overall Stony Brook undergraduate GPA of at least 3.3
- GPA in courses required in the Applied Math major of at least 3.5
- Letters of recommendation from two faculty who rank the student in the top 10% of their classes.

B.S./M.P.H. Required Course Work

The degree requirements for the B.S./M.P.H. degree program do not differ from the requirements for the undergraduate program and the M.P.H. program. The benefit of the joint degree is that 12 graduate M.P.H. credits count toward the student's undergraduate degree, with 8 of the 12 credits also counting as upper-division electives in the Applied Mathematics and Statistics major including: HPH 506, Biostatistics I (2 credits), HPH 507 Biostatistics II (3 credits), and HPH 555 Demographic Theory and Methods (3 credits). Four additional M.P.H. graduate credits may be counted towards the 120 total credits required for the B.S. degree. All required courses and DEC/General Education requirements remain.

Completion Timetable

Students in the combined B.S./M.P.H. program can complete both degrees in 10 semesters. For the first three years (first six semesters) students complete undergraduate course work for DEC/General Education and requirements of the undergraduate major program. During the fourth year (seventh and eighth semesters), students take undergraduate and graduate courses. During the fifth year (ninth and tenth semesters), students complete the remaining graduate requirements for the M.P.H. degree.

M.P.H./M.B.A. Degree

The Graduate Program in Public Health and the College of Business offer a combined M.P.H./M.B.A. degree program to prepare students for a management career in the health field. The M.P.H./M.B.A. program includes 19-20 credits (7 courses) of overlap, which reduces the total number of credits in the joint program to 71-78 credits, depending on which M.P.H. concentration is chosen. Students will receive both degrees upon completion of the entire program.

Admission to the M.P.H./M.B.A. Degree Program

Students who wish to be considered for admission into the combined M.P.H./M.B.A. degree program must comply with all the requirements of admission for the M.P.H. degree alone. The M.P.H. Admissions Committee will review completed M.P.H./M.B.A. applications initially and recommend eligible applicants to the Admissions Committee of the School of Business for approval. M.P.H./M.B.A. degree applicants may submit GMAT scores in lieu of GRE scores.

Course Descriptions

M.P.H. Core Courses

HPH 500 Contemporary Issues Public Health

This course provides an introduction to the field of public health that aims to develop an appreciation of the unique and important mission of public health; an understanding of the history, values, ethics, mission, and goals of public health; and knowledge about how public health functions today including the organization, financing, policies, and practices of public health. Students will be expected to think critically about whether public health has achieved its mission in today's world and how the profession might develop in the future.

2-3 credits Lecture

HPH 501 Introduction to the Research Process

This course provides an overview of the research process including formulation of a research problem, conceptualization of the research design, construction of the instrument for data collection, selection of the sample, collection of data, processing of data, and writing the research report. Topics include how to identify a research question and, correspondingly, how to formulate a clear, concise hypothesis or set of hypotheses; reasons and procedures for reviewing the literature; overview of observational and interventional research designs; review of measurement theory, types of scales, and commonly used measures in public health-related research; data collection methods including survey and qualitative methods; and the ethical conduct of research. Through the introduction of these topics, the course provides a general background for individuals who are interested in learning the fundamentals of how to prepare a research proposal.

2 credits Lecture

HPH 506 Biostatistics I

This is part 1 of a 2-term course and is intended to provide students and researchers in public health with an introduction to the principles of statistical methods and their application in biomedical and public health research. Students are expected to enroll in parts 1 and 2 sequentially within the same academic year. This course includes introductions to the use of computers for statistical analysis, summarizing and exploring data, probability theory, discrete and continuous probability distributions, populations and samples, sampling distributions and statistical inference, hypothesis testing, sample size and power, two-sample comparisons, analysis of variance, association and correlation, simple linear regression, and simple logistic regression.

Prerequisites: math placement exam score of 3 or higher

2-3 credits Lecture

HPH 507 Biostatistics II

This is part 2 of a 2-term course and is intended to provide students and researchers in public health with an introduction to the principles of statistical methods and their application in biomedical and public health research. Students are expected to enroll in parts 1 and 2 sequentially within the same academic year. This course includes introductions to the use of

computers for statistical analysis, summarizing and exploring data, probability theory, discrete and continuous probability distributions, populations and samples, sampling distributions and statistical inference, hypothesis testing, sample size and power, two-sample comparisons, analysis of variance, association and correlation, simple linear regression, and simple logistic regression.

Prerequisites: HPH 506

3 credits Lecture

HPH 508 Health Systems Performance

This course introduces students to the system that we have developed to deliver health care in the United States, with international comparisons. The topics include the organization and financing of health care systems, access to health care including health insurance, regulation and policy issues, and the health care workforce.

3 credits, fall semester, Professor R. Goldsteen

HPH 514 Epidemiology for Public Health

This course presents basic epidemiologic concepts used to study health and disease in populations. It provides an overview of the major causes of morbidity and mortality, including methods of measurement (e.g., incidence, prevalence). Observational and experimental epidemiologic studies will be described and their advantages and disadvantages compared. The course aims for students to begin developing the skills needed to evaluate data, interpret reports, and conduct studies. Students will be introduced to the various areas of epidemiologic study—cancer, molecular/genetic, environmental, occupational, social and behavioral, and infectious disease/surveillance. The course comprises both lectures and small group seminars for in-depth discussions of previously assigned topics.

3 credits, spring semester, Professor O'Leary

HPH 516 Environmental and Occupational Health

This course is designed to provide the fundamentals of environmental and occupational health and to educate students on issues related to major environmental and occupational concerns. It will provide a forum for the discussion of local and national environmental and occupational public health issues. The content of the course will focus on major pollutants, their detection, impact on health, and principles of remediation. Using various teaching techniques, students will be exposed to current environmental and occupational topics and approaches to prevention and treatment. The course will emphasize the most recent research in the field.

3 credits, spring semester, Public Health Faculty

HPH 523 Social and Behavioral Determinants of Health

This course introduces students to population health as one of the organizing concepts in public health and the orientation that differentiates public health from medicine. Consistent with public health tradition, health is discussed from an ecological perspective, and the course presents current knowledge about the multiple determinants of population health including socioeconomic status, the physical environment, medical care, individual behavior, and genetics and the inter-

action of these factors. Also covered is the measurement of population health, sources of data, and methods for assessing population health improvements.

2 credits, summer semester, Professor Hale

HPH 549 Public Health Law

This course is a survey of legal and policy issues that have special relevance for public health professionals. Topics may vary, but typically will include many of the following: structure of the U.S. legal system; power of state governments in matters affecting health care; governmental power and the right to privacy; constitutional issues in social welfare benefits; governmental regulation of health care providers and payers; the scope and discretion of administrative agencies in health care; the antitrust laws; the fraud and abuse laws; and negligence in the delivery and financing of health care. Prerequisite: HPH 508

2 credits Lecture

HPH 562 Data Management and Informatics

This course provides students with an introduction to the principles of public health informatics and data management using the SAS systems. Lectures and labs will be aimed at developing hands-on skills about how to create, maintain, and manage databases using the SAS Systems for Windows, a major software package used frequently in public health and clinical research. In addition, the student will learn how to retrieve and summarize information about population health from major public health information systems in the U.S.

2 credits Lecture

HPH 563 Cost Benefit and Cost Effectiveness Analysis

The course will introduce the uses and conduct of cost benefit and cost effectiveness analyses as decision-making aids in the health care research. It will provide students with an understanding of the roles and limitations of cost benefit and cost effectiveness analyses and criteria for evaluating those studies. Critical issues regarding measuring cost and effectiveness, evaluating outcomes, discounting, and dealing with uncertainty will be discussed.

2 credits, spring semester, Professor Rizzo

The Culminating Experience

The Capstone Seminar and the Practicum are offered as tandem experiences. They combine to create the culminating experience for the proposed program.

HPH 580 Practicum

The Practicum is a planned experience in a supervised and evaluated public health-related practice setting. A journal of fieldwork and a project, with a written report, are required. Students will be expected to demonstrate their "capacity to organize, analyze, interpret and communicate knowledge in an applied manner." Health departments, as well as a variety of other local organizations, offer a wide array of potential sites for the Practicum experience.

3 credits, fall, spring, and summer semesters, Public Health Faculty

HPH 581 Capstone Seminar: Population Health Issues

This course will assist students in synthesizing the basic public health knowledge through completion of a Capstone Project. Attendance at Public Health Grand Rounds will also be required for this course. Most core and concentration course work must be complete before the student can participate in the Capstone Seminar.

2-3 credits, fall, spring, and summer semesters, Public Health faculty

Evaluative Sciences Concentration (Required Courses)

HPH 555 Demographic Theory and Methods

This course introduces students to the basic theory and methods employed in the study of demography. The students will understand life table methodology, population projection, sources of demographic data, patterns in global fertility and mortality, the demographic transition, current patterns in fertility, marriage and work, abortion and contraception, and fertility/mortality interrelationships.

3 credits, spring semester, Professor Hale

HPH 560 Advanced Biostatistics

This course will discuss aspects of practice and statistical theory relevant to the design of scientific investigations in the health sciences. Topics will include sample size considerations, basic principles of experimental design, block designs, and factorial experiments, and multivariate analysis for continuous and categorical data.

Prerequisites: HPH 506 and HPH 507

3 credits, spring semester, Public Health faculty

HPH 565 Health Services Research Applications

The course is designed to introduce students to the application of standard methods in health services research. The student will learn the principles, methods, and terminology specific to this field. Threats to validity, information bias and the methods of control will be explored. Lectures will include risk adjustment, benchmarking, outcomes and effectiveness research. This course will emphasize the theory of sampling and survey methods and their application to health services research.

Prerequisites: HPH 507 and HPH 562

2-3 credits, fall semester, Professor Meng

HPH 567 Clinical Outcomes Research

This course will provide an overview of the field of clinical outcomes assessment. The specific topics covered include: risk factors identification, clinical outcomes selection, risk adjustment methods, patient safety monitoring, and provider-based quality improvement performance reporting. Students will be introduced to a broad range of clinical outcomes including (but not limited to) short-term mortality, treatment-related morbidity, health-related quality of life, condition-specific metrics, patient satisfaction, health plan member satisfaction, utility theory, and cost-effectiveness analysis. An emphasis will be placed in this course on how clinical outcomes research can

provide a data-driven approach to influence patient, provider, program, and policy decisions.

Prerequisites: HPH 507 and HPH 562

3 credits Lecture

Community Health Concentration (Required Courses)

HAS 527 Principles & Practices of Public & Community Health

This course provides an overview of the public health system, the philosophy and purpose of public and community health, the managerial and educational aspects of public health programs, how the public health sector responds to disease prevention, environmental issues, community public health provisions and other core public and community health components. The impact of federal health care reform on the public health delivery system and the economic and fiscal implications of the system on state and local governments will be discussed. Students will analyze the critical elements of a health care system.

3 credits, semester varies, Community Health Faculty

HAS 533 Communications & Group Dynamics

This course provides a strong introduction to the structure and dynamics of working groups and teams in various health care settings. The course is designed to familiarize students with the principles of interpersonal communication and group process and to develop, enhance and strengthen skills in these areas. Students will participate in a variety of activities, including readings, case studies, and written and oral presentations that illustrate relevant principles and provide practice in their application. The knowledge and skills acquired in this course will enhance communication with patients, program participants, colleagues, community members and leaders. Students will also develop skills for facilitating small and large group discussions for teaching patients and communities and for educating special populations.

3 credits, semester varies, Community Health Faculty

HAS 557 Planning and Evaluating Health Programs

This course provides students with knowledge and skills for developing all phases of community health plans. Students gain knowledge and skills to conduct needs assessment including the use of surveys, focus groups, literature reviews, chart reviews, telephone/computer interviews and content expert consultations. Students also acquire extensive information and materials for developing implementation strategies, methods and techniques. All students are required to design a community health program utilizing the planning and implementing phases presented in the course.

3 credits, semester varies, Community Health Faculty

HAS 559 Health Behavior & Risk Reduction

The impact of behavior on the health and well-being of the public is profound and far-reaching, as the majority of the leading causes of death and disability are largely attributable to behaviors that can be modified or prevented through changes in individual, community, and/or institutional/organizational behavior. This course is designed to (1) help students

acquire knowledge of theories and concepts to describe, explain, and predict health-related behaviors as well as behavioral responses to risk communication; (2) learn the skills to apply this knowledge to evaluate the effectiveness of behavioral and health communication interventions; and (3) develop a health-related behavioral intervention project proposal that includes a plan to evaluate behavior change outcomes.

3 credits, semester varies, Community Health Faculty

HAS 560 Evaluation of Community Health Programs

Addresses basic principles and practices of program evaluation including identifying the goals of a community health program; designing an evaluation plan, that can determine if program goals are achieved; implementing an evaluation plan; interacting with stakeholders, and using the results of the program evaluation to improve performance. Students are required to design an evaluation component for the community health program they developed in HAS 557: Planning & Evaluating Health Programs.

3 credits, semester varies, Community Health Faculty

Public Health Practice Concentration (Required Courses)

HPH 524 Strategic Management of Public Health Organizations

This course is an introduction to public health management in relationship to program development and implementation. Health care organizations will succeed or fail for reasons related to their strategic planning and the organizational strategies designed to achieve their goals. Through lectures, discussions, group exercises, guest lecturers, and case analyses, students will explore the strategic management and planning process. Students will formulate and evaluate alternative solutions to program development and implementation through critical analysis of the stages of strategic planning and management: situational analysis, strategic formulation of program, and strategic implementation of programs.

2 credits Lecture

HPH 530 History of Public Health and Medicine

This course explores major themes and interpretations in the history of public health and medicine since the 18th century. Particular emphasis is placed on the influence of social and cultural developments on medicine and public health, and vice versa. American developments will be placed in a broad comparative perspective including both Western and non-Western nations.

2 credits, summer semester, Professor Tomes

HPH 555 Demographic Theory and Methods

This course introduces students to the basic theory and methods employed in the study of demography. The students will understand life table methodology, population projection, sources of demographic data, patterns in global fertility and mortality, the demographic transition, current patterns in fertility, marriage and work, abortion and contraception, and fertility/mortality interrelationships.

3 credits, spring semester, Professor Hale

HPH 660 Management Accounting & Financial Decision Analysis

Fundamentals of managerial accounting with emphasis on ratio and cost accounting terms, concepts, break-even analysis, financial structure, cost analysis, opportunity costs and return calculations, replacement of assets, and cash flow management. (Cross-listed with EMP 502)

3 credits, fall semester

Selective Courses**HPH 503 Research Ethics**

This course presents issues in the ethical conduct of research. Topics include data collection and management, research fraud, academic misconduct, conflict of interest, federal and institutional guidelines regarding research using human and animal subjects, vulnerable populations, confidentiality, and the Institutional Review Board (IRB).

1 credit, semester varies, Public Health Faculty

HPH 504 Surveillance & Control of Infectious Diseases

This course introduces the methods of surveillance and control of infectious diseases in the community and in health care organizations including the design, implementation, and evaluation of surveillance systems and the analysis of surveillance system data. The course focuses on infectious diseases common in the United States, but also discusses the global situation. Bioterrorism will be discussed.

2 credits, semester varies, Public Health Faculty

HPH 505 Topics in Population Health Studies

This course presents current topics and issues in population health studies.

*1-3 credits, semester varies, Public Health Faculty
May be repeated 1 time for credit.*

HPH 509 Methods for Population Health Studies

This course introduces population health studies methods and their importance for evidence-based public health practice. Topics include the design, implementation, and analysis of community surveys, qualitative studies, and evaluation studies for health programs. Sources and uses of existing data for population health studies, including census, mortality, administrative, and survey will be discussed.

2 credits Lecture

HPH 510 Advanced Epidemiology

This course will introduce advanced statistical methods for epidemiological investigations for infectious and non-infectious diseases. The topics include interaction, standardization of rates and ratios, conditional logistic regression, life tables, and survival analysis.

Prerequisites: HPH 511 and 514 or other mathematically-oriented introduction to statistics

3 credits, fall semester, Public Health Faculty

HPH 513 Decision Making in Medicine and Public Health

This course is designed to introduce the student to the methods and range of applications of decision analysis in health care technology assessment, medical decision making, and health resource allocation. Students will learn the basics of decision science and how to organize complex problems into an analyzable framework as a basis for decision making and its applications in public health and clinical settings. This course will cover the following areas: making use of probabilities in medicine, choice and interpretation of diagnostic tests, decision tree construction and analysis, quantifying patient preferences, and cost-effectiveness analysis. Students will learn methodologies for dealing with complex decisions both on an individual patient level and at a policy level, and will have hands-on experience in applying these to a problem of their choice.

Prerequisites: HPH 506 and HPH 507

3 credits Lecture

HPH 517 Continuous Quality Improvement Methods

This course introduces the principles and methods of continuous quality improvement (CQI) for public health and health care organizations including benchmarking, development of pertinent information systems, timely and regular analysis of data, and presentation of performance results. The course also discusses implementation issues including availability of relevant data and achieving administrative and staff support.

2 credits, semester varies, Public Health Faculty

HPH 519 Independent Study

Intensive reading, under supervision of one or more instructors, of material not covered in the formal curriculum, or execution of a research project under the supervision of one or more faculty members.

Prerequisites: permission of M.P.H. Academic Coordinator
*0-6 credits, semester varies, Public Health Faculty
May be repeated 5 times for credit.*

HPH 521 Introduction to Clinical Research

This introductory seminar series provides a broad-based overview of clinical science research methods, as well as guidance for critically reviewing the peer-reviewed literature. Class lectures, exercises, and interactive small group sessions will cover framing a research question, formulating a research hypothesis, critically appraising the literature, exploring study design options, conducting research ethically and responsibly, selecting clinical outcomes, and evaluating analytical alternatives.

1-3 credits Lecture

HPH 526 Issues for Public Health Organizations

Not all organizational change improves upon the past and most change is difficult. This course discusses the challenges facing public health managers who are intent on implementing organizational change. Top management processes for public health leaders will be explored including strategic planning, resource allocation, decision-making, learning, and managing.

2 credits, spring semester, Public Health Faculty

HPH 528 Survey Research Methods

This course will introduce survey research methods for community populations. It will include measurement of health status and other factors related to the health of community populations including socioeconomic status, health behavior, occupation, and social support. Topics will include sampling and design strategies, instrument development, scaling, assessment of reliability, validity and responsiveness to change; principal component(s); analysis and factor analysis; and item response theory. The course will introduce students to the many existing sources of community health survey data including the recurrent national surveys such as the National Health Interview Survey.

2 credits, spring semester, Public Health Faculty

HPH 539 Global Epidemiology & Preventive Medicine

This course focuses on strategies to reduce mortality and morbidity from specific conditions. The conditions selected are mainly infectious diseases that account for the majority of preventable deaths and disability in low-income countries, especially among children. Detailed discussion of disease due to protozoa and parasites will, however, be deferred to another course. In addition, the increase in mortality from tobacco-related disease and trauma in poor countries will also be addressed.

3 credits, semester varies, Public Health Faculty

HPH 540 Medical Anthropology, Culture, & Ethics

This course focuses on how patients in non-western societies view issues related to health and disease and how medical interventions can be integrated into local beliefs and customs. Particular attention will be devoted to the role of women in improving the health status of their communities. Region-specific overviews will be provided on how history and culture have influenced health in sub-Saharan Africa and Latin America. Ethical issues related to resource allocation and medical and public health research in low income countries will also be addressed in this course.

3 credits, semester varies, Public Health Faculty

HPH 541 Provision of Health Care in Low Income Countries

This course focuses on the practical implementation of interventions to reduce disability and premature death in low income countries. It will cover funding and organization of health care; primary health care programs; role of expatriate health workers; and emergency medical care of refugee populations.

3 credits, semester varies, Public Health Faculty

HPH 542 Introduction to Global Health

This course will provide health personnel with a basic awareness of the problems of the worlds' population with special focus on the poorest. To promote these objectives, this course has been designed to introduce medical and public health students to key population health topics from a global perspective, with special emphasis placed on the health and welfare of women and young children in low-income countries. The health impact of emergent infectious diseases will be reviewed. The design and effectiveness of foreign aid pro-

grams will be discussed. Students will be introduced to demography and the impact of population increases on the global environment. There will be discussions of the health problems of immigrants to the U.S. from tropical countries. Finally students will learn about vaccination and other safety issues related to traveling and working in the tropics.

2 credits, semester varies, Public Health Faculty

HPH 544 Development & Demography

This course focuses on broad issues of international aid and development policies that impact human health and the global environment. The course will help place the specific clinical interventions discussed in other courses into a wider socioeconomic context. Topics will include demography, poverty, health, and development; international and U.S. AID policies; and global environment for sustainable development.

3 credits, semester varies, Public Health Faculty

HPH 545 Clinical, Laboratory, & Epidemiological Parasitology & Protozoology

This is an integrated and detailed course on the subjects of parasitology and protozoology. The epidemiology, microbiology, clinical presentation, and management, as well as laboratory diagnosis, of these conditions will be covered. The human and economic impact of these conditions will be discussed. Preventive measures will be discussed in detail. It will be assumed that students have minimal or no prior knowledge of these conditions.

3 credits, semester varies Public Health Faculty

HPH 548 Health and Science Communications

This graduate level course is taught in combination with the journalism undergraduate course JRN 334 Science and Health Reporting. This course aims to foster a mutual understanding of health communication between the journalist and public health professional with the goal of improving the public health messages that are released to the public thereby improving health literacy. Students will develop skills and knowledge needed to frame and communicate messages accurately within the framework of public health institutions and the media. Students will gain: an understanding of how all forms of media are organized and how news is disseminated; how hospital/public health media relations offices are organized and disseminate information; how to write press releases; how to communicate basic statistics; how to give an interview as an expert to the media; how to interpret research studies, etc. Drawing on the resources of the Health Sciences Center, as well as the School of Journalism, the course stresses hands-on experiences: Public Health students and journalism students will work together in communicating public health news to the public. Public Health students will be called upon by their journalism colleagues to either provide ideas for public health media or be an expert on a story generated by the journalism student. Students will spend time shadowing a hospital/public health media relations person, as well as shadowing a journalist, will meet with Suffolk County health officials and participate as a public health official at a mock news conference; practice being interviewed by a journalist using the medical schools Clinical Skills Center and will visit Brookhaven National Laboratory.

3 credits Lecture

HPH 561 Design of Scientific Investigations

This course is an overview of the theory and methods relevant to health sciences research, beginning with the philosophy of scientific investigations, the role of literature in the advancement of science and moving to problem identification, formulation of research questions, research design, and issues of sampling and sample selection, measurement, and analysis.

1 credit, semester varies, Public Health Faculty

HPH 564 Research Methods for Community Populations

This course will introduce the design, measurement, and analysis of research for community populations. It will include measurement of health status and other factors related to the health of community populations including socioeconomic status, health behavior, occupation, and social support. Topics will include instrument development, scaling, assessment of reliability, validity and responsiveness to change; principal component analysis and factor analysis; and item response theory. The course will introduce the many existing sources of community health information including the recurrent national surveys such as the Health Interview Survey.

2 credits, semester varies, Public Health Faculty

HPH 566 Clinical Trials

This course introduces the design, conduct, and analysis of clinical trials. Topics will include types of clinical trials, study design, treatment allocation, randomization and stratification, quality control, sample size requirements, patient consent, and interpretation of results.

2 credits, semester varies, Public Health Faculty

HPH 568 Overview of Molecular Medicine & Genomics

The course will introduce basic concepts of molecular diagnostics currently in clinical use. The principal topics to be covered include: an introduction to the human genome; principles of human genetics; microarray, genomic and bioinformatics approaches to human disease; cancer genetics; animal models of human diseases; emerging pathogens; principles of genetic testing strategies and test development; emerging molecular therapeutics; regulatory, patenting and licensing issues of relevance to drug discovery and test development.

2 credits, semester varies, Public Health Faculty

HPH 569 Modeling for Evaluative Sciences

This course will present an introduction to the methods of data mining and predictive modeling, with particular emphasis on applications to health services research and clinical outcomes research. Basic concepts and philosophy of data mining as well as appropriate applications will be discussed. Topics covered will include multiple comparisons adjustment, and predictive model building through logistic regression, classification and regression trees (CART), multivariate adaptive splines (MARS), and neural networks.

2 credits, semester varies, Public Health Faculty

HPH 570 Multilevel and Longitudinal Analysis

The course covers methods for the analysis of repeated measures, correlated outcomes and longitudinal data, including the unbalanced and incomplete data sets characteristic of health service research. Topics include ANOVA, random effects and

growth curve models, and generalized linear models for correlated data, including generalized estimating equations.

2 credits, semester varies, Public Health Faculty

HPH 571 Research Synthesis and Meta Analysis

This course concerns the use of existing data to inform clinical decision-making and health care policy. The course focus is research synthesis (meta-analysis). The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions.

2 credits, semester varies, Public Health Faculty

HPH 572 Introduction to Clinical Trials

Targeted to graduate medical trainees and junior clinical faculty, this course provides an overview of topics related to the design, conduct, and analysis of clinical trials. Topics will include types of clinical trials, study design, treatment allocation, randomization and stratification, quality control, sample size requirements, patient consent, and interpretation of results.

2 credits Lecture

HPH 601 Health Behavior and Risk Reduction

Discusses the impact of behavior on the health and well-being of the public. Addresses the leading causes of death and disability that are largely attributable to behaviors that can be modified or prevented through changes in individual, community, and institutional or organizational behavior. The course is designed to help students acquire knowledge of theories and concept to describe, explain, and predict health-related behaviors as well as behavioral responses to risk communication; learn the skills to apply this knowledge to evaluate the effectiveness of behavioral and health communication interventions; and develop a health-related behavioral intervention project proposal that includes a plan to evaluate behavior change outcomes.

3 credits Lecture

HPH 620 Parameters of Social and Health Policy I

Introduces students to United States social policy, with special emphasis on political, economic, and social factors that have affected its historical development, particularly in reference to oppressed groups. Explores relationship of social policy to social work practice.

3 credits, fall semester, Professors Blau, Brandwein, Farrington, Lewis and Peabody

HPH 621 Parameters of Social and Health Policy II

Utilizes frameworks for social policy analysis. Explores continuing dilemmas in policy development. Stresses effects of social movements and social change on social policy.

Prerequisite: HWC 509

3 credits, spring semester, Professors Blau, Brandwein, Farrington, Lewis and Peabody

HPH 626 Overview of Substance Abuse

An examination of the history and development of alcohol and substance abuse problems in the United States. Focuses on the etiology, psychopharmacology and legal ramifications of the use licit and illicit substances in our culture. Provides information on a variety of services available to drug abusers, addicted individuals and their families in the fields of prevention, education and treatment. Co-scheduled with HWC 344. *2 credits, fall semester, Professors Brisbane and Murphy*

HPH 630 Chemical Dependency in Special Populations

Covers alcoholism and substance abuse with populations that have been traditionally devalued and oppressed. Focuses on development of skills and sensitivity to the needs of ethnic groups, women, the elderly, the mentally ill and gay and lesbian people who are chemically dependent. Explores policy and practice issues related to these populations. *2-3 credits, semester varies, Professor Murphy*

HPH 631 Cultural Competency: An Ingredient Enhancing Treatment Outcomes

Demonstrates that cultural competency, like computer literacy, is a necessity. Outlines how prevention messages and treatment modalities provided within a cultural context are likely to change attitudes or redirect behaviors. There is a new wave of immigrants and a growing assertion of cultural identity by groups who were born in the U.S. Therefore, a new communication edict of cultural dialogue is fast becoming part of one's professional mandate. Hence, the ability to interact with people who are culturally different from the professional is a prerequisite to providing culturally competent services to these groups. Co-scheduled with HWC 357. *2 credits, semester varies, Professor Brisbane*

HPH 633 Childhood Sexual Abuse and Long-Term Sequelae: Assessment and Intervention

Introduces students to the incidence and prevalence of childhood sexual abuse as a national problem. Covered are definition issues, sequelae during childhood, family constellation and adult sequelae. Addressed are assessment and current treatment modalities, particularly for families and offenders, ethical and legal dilemmas and the subsequent health-related difficulties of this childhood trauma. Special attention is paid to the cultural dynamics in sexual abuse. Students are expected to develop an awareness of and critically analyze current research. Focus is also on examination of policy issues and legislation. *2-3 credits Lecture*

HPH 634 Program Evaluation

Provides an in-depth analysis of the technical requirements of program evaluation and the organizational and political constraints that influence the evaluation process. Covers techniques in the design and implementation of evaluation research in the health and human service fields. Prerequisites: HWC 511 and 512 *2-3 credits Lecture*

HPH 635 Seminar on Family Violence

An overview of the phenomenon of family violence in the United States including child abuse, partner abuse and elder abuse. Explores theories of etiology, including patriarchy, intergenerational family dynamics and substance abuse. Examines programmatic approaches and programs for batterers and prevention strategies. *2 credits, semester varies, Professor Brandwein*

HPH 636 Community Analysis and Health Promotion

Explores diverse concepts of community, analyzes a range of community structures, processes, and power relationships. Investigates contemporary models, strategies and tactics of community organizing and health promotion in the United States and in selected other countries. Emphasizes efforts by poor people, ethnic minorities of color and women to organize and mobilize community groups and movements. Highlights group and community analysis and organization skills. *2-3 credits, semester varies, Professor Vidal*

HPH 638 Qualitative Health Research Methods

The class works as a team on a joint project. Topics include problem formulation, instrument construction, sampling strategy, interviewing, data transcription, and data analysis. Prerequisites: HWC 511 and 512 (Cross-listed with HWC 588). *2-3 credits*

HPH 649 Health Physics

The course is the study of health physics, integration of radiation with matter, radiation dosimetry, biological effects of radiation and radiation protection. The course will emphasize both the theoretical and operational aspects of health physics. (Cross-listed as CEM 539 or HPH 649). Prerequisite: Permission of instructor, (631) 444-2196 *3 credits Lecture*

HPH 653 Introduction to Homeland Security

The course is a combination of lectures and laboratory experience to introduce students to critical issues and assess needs for homeland security. The course includes invited lectures by experts on special topics such as fundamentals of nuclear, chemical, and biological weapons and the associated threat to the transportation of goods and the public. The students will learn about cyber security, devices to safeguard materials from terrorist threats, safety of nuclear power plants and water supply, forensics and emergency preparedness. The students will submit a term paper on a selected topic in lieu of the final exam. (Cross-listed as EST 550 or HPH 653). Prerequisites: undergraduate level biology, chemistry, and physics *3 credits, semester varies*

HPH 654 Nuclear Security

The course will familiarize students with the fundamentals of nuclear physics, radiation, mining, weapons, and fuel cycle, other than producing electricity, as it pertains to nuclear power plants. Topics include nuclear detection, devices to safeguard nuclear materials from terrorist threats, needed

physical protection for safe handling and its relevance to Homeland Security. The course combines lectures with hands-on experience at the newly installed nuclear detection facility located at the nearby United States Department of Energy's Brookhaven National Laboratory. (Cross-listed as EST 553 or HPH 654).

Prerequisite: undergraduate equivalent physics or chemistry
4 credits, semester varies

HPH 655 Clinical and Biological Weapons: Safeguards and Security

This course deals with the fundamentals of chemistry and bi chemistry related to chemical weapons (CW) and biological weapons (BW) that could be used by terrorists. Topics include CW and BW history, production, control, detection, identification, and emergency response measures to deal with intended or unintended release and escape, and security measures to protect and control stockpiles. (Cross-listed as EST 554 or HPH 655).

Prerequisite: undergraduate equivalent chemistry, biochemistry, and microbiology
4 credits, semester varies

HPH 656 Risk Assessment, Regulation, and Homeland Security

The course focus is on risk assessment associated with nuclear, chemical, and biological weapons as it relates to Homeland Security. Topics include air dispersion, uncertainty analysis, exposure measurements, epidemiology, toxicology, regulatory issues, risk management, risk communication, risk perception, and risk preparedness. The course will also cover laws and regulation, discouraging terrorism, and disaster preparedness, various acts passed by the U.S. Congress to regulate water, air, and controlled substances. (Cross-listed as EST 560 or HPH 656).

Prerequisite: undergraduate or equivalent physics, math, and chemistry
4 credits, semester varies

HPH 657 Demographic Economics I

This course deals with the economics of the family. It utilizes recently developed techniques in economics and demography to deal with questions concerning marriage, divorce, fertility, contraception, the intrafamily distribution of resources, and the intergenerational distribution of resources. Students will do original theoretical and empirical research under the professor's supervision.

Prerequisite: ECO 501; graduate standing in the Economics Department, or permission of the Graduate Program Director
0-3 credits, spring semester

HPH 658 The Use Of Remote Sensing and GIS in Environmental Analysis

An introduction to the use of aerial and satellite imagery in environmental analysis and the manipulation of geographic data sets of all types using Geographic Information Systems. This course is designed to teach students in archaeology, physical anthropology, and related disciplines, how satellite imagery combined with various maps can be manipulated using GIS software to perform powerful geographic analysis. Although students are eventually likely to use these tools in

many different parts of the world, this course focuses on Long Island as a research area, and each student designs and completes a research project on a particular section of the area, focusing on the habitats of local wildlife, the locations of archaeological sites, coastal regimes, etc. This course presumes computer literacy and familiarity with database management. This course is offered as both ANT 526 and DPA 526 or HPH 658.

3 credits, spring semester

HPH 659 Biology of Cancer

A short course with the emphasis on cancer as a disease of man. Lectures address human cancer as seen by the clinician and as basic research relates to human disease. This course provides students with a link between courses in cell and molecular biology and the application of this basic information to tumor management.

1 credit, spring semester, even years

HPH 660 Management Accounting and Financial Decision Analysis

Fundamentals of financial and managerial accounting with emphasis on concepts, ratio and break-even analysis, financial structure, cost analysis, replacement of assets, and cash flow management.

3 credits, fall, lecture

HPH 661 Methods of Socio-Technological Decision Making

Focus is on the application of decision-making techniques to analyze problems involving technology, particularly its social impacts. Areas of study include decision making under uncertainty, decision making in a passive vs. active environment, sequential decisions, estimating payoffs, forecasting, and technology assessment. These systems-analysis techniques are used to formulate and solve a variety of socio-technological problems, especially those that arise in educational, industrial, and environmental professions.

Prerequisite: Graduate standing in department or permission of instructor

3 credits, fall, lecture

HPH 662 Systems Approach to Human-Machine Systems

Systems concepts (feedback, stability, chaos, ergonomics) and analytical tools applied to dynamic systems in which technologies and/or natural environments interact with human users, regulators, or designers. Examples: ecological systems, nuclear power plant operations, space shuttle missions, computer/ web educational technologies, regional planning. Students prepare a systems design study of an industrial, educational, or environmental device, technology, or management system.

Prerequisites: EST 581 or permission of instructor graduate standing in the department

3 credits, spring semester

HPH 664 Health Economics I

Theoretical and econometric analysis of selected aspects of the health care delivery system, such as the demand for medical services, the supply and distribution of physician services, the

utilization of non-physician medical personnel, alternative models of hospital behavior, third-party insurance reimbursement, national health insurance and cost, and price inflation in the hospital and long-term care sectors. Crosslisted as ECO 646 or HPH 664.

Prerequisites: ECO 501, ECO 521; Graduate standing in the Economics department or permission of the Graduate Program Director

0-3 credits Lecture

HPH 665 Health Economics

This course applies advanced economic theory and econometrics to issues within the health market in more detail. Theoretical and econometric analysis of the health care delivery system, such as the demand for medical services, the supply and distribution of physician services, hospital behavior, third-party insurance reimbursement, national health insurance and cost, price inflation, and welfare economics and policy analysis. (Co-scheduled with ECO 645.)

2 credits, spring semester

HPH 671 Marine Pollution

Review of the physical and chemical characteristics and speciation in the marine environment of organic pollutants, metals and radionuclides including bioavailability, assimilation by marine organisms, toxicity, and policy issues.

Prerequisites: MAR 502 and MAR 503 Cross-listed as MAR 512 or HPH 671

3 credits, fall semester

HPH 672 Marine Management

The course discusses waste management issues particularly affecting the marine environment. Topics include ocean dumping, sewage treatment, fish kills, beach pollution, and nuisance algal blooms. Techniques for managing the waste stream are presented. (Cross-listed as MAR 514 or HPH 672).

Prerequisite: Permission of instructor

3 credits, spring semester

HPH 673 Groundwater Problems

Discussion of the hydraulic processes and technologies that are central to the management and monitoring of groundwater resources including special problems of coastal hydrology and saltwater intrusion, as well as the fate of contaminants. Remediation approaches are also examined. (Cross-listed as MAR 521 or HPH 673).

Prerequisite: permission of instructor

3 credits, semester varies

HPH 674 Environmental Toxicology and Public Health

Principles of toxicology and epidemiology are presented and problems associated with major classes of toxic chemicals and radiation to human and environmental health are examined in case study format.

3 credits, spring semester, lecture

HPH 675 Environment and Public Health Engineering/Sanitation

Review of the interactions of humans with the atmosphere

and water resources, especially in the Long Island coastal community. An introduction is provided to the field of environmental health and the practices relevant to an urban and suburban and coastal setting. (Cross-listed with HPH 675).

Prerequisite: permission of instructor

3 credits, spring semester

HPH 676 Environmental Law and Regulation

This course covers environmental law and regulations from inception in common law through statutory law and regulations. The initial approach entails the review of important case law giving rise to today's body of environmental regulations. Emphasis is on environmental statutes and regulations dealing with waterfront and coastal development and solid waste as well as New York State's Environmental Quality Review Act (SEQRA) and the National Environmental Policy Act (NEPA). (Cross-listed as MAR 536 or HPH 676).

3 credits, semester varies

HPH 684 Environmental and Waste Management in Business and Industry

Environmental and waste management practices in industrial and other institutional settings. Technologies of hazardous waste prevention, treatment, storage, transportation, and disposal are considered. Topics include information systems and software tools for environmental audits, regulatory monitoring and compliance, cost estimation, recycling programs, air, land and water emissions controls and permits. Employee health, safety and education and quality management are examined. Field trips to several Long Island institutions. (Cross-listed as EST 586 or HPH 684).

3 credits, semester varies

HPH 686 Risk Assessment and Hazard Management

A case-study approach to the assessment of risk and the management of natural and technological hazards, with emphasis on those that can harm the environment. The course focuses on technological hazards involving energy, transportation, agriculture, natural resources, chemical technology, nuclear technology, and biotechnology, and on natural hazards such as climatic changes, droughts, floods, and earthquakes. The first part of the course consists of readings on risk assessment and hazard management and discussions of published case studies. During the second part of the course, students conduct their own case studies and use them as the basis for oral and written reports. (Cross-listed as EST 593 or HPH 686).

3 credits, spring semester

HPH 687 Diagnosis of Environmental Disputes

Diagnosis of disagreements about environmental and waste problems. Tools for evaluating disputes about (a) scientific theories and environmental models, (b) definitions and analytical methodologies for estimating risk, "real" cost, net energy use, and life-cycle environmental impact, (c) regulatory and legal policy, (d) siting of controversial environmental facilities, and (e) fairness and other ethical issues. These diagnostic tools are brought to bear upon case studies of population prevention, recycling, nuclear waste disposal, and climate change. (Cross-listed as EST 594 or CEY 594 or HPH 687).

3 credits, semester varies

HPH 688 Principles of Environmental Systems Analysis

This course is intended for students interested in learning systems engineering principles relevant to solving environmental and waste management problems. Concepts include compartmental models, state variables, optimization, and numerical and analytical solutions to differential equations (Cross-listed as EST 595 or HPH 688).

Prerequisites: MAT 132 and one year of quantitative science such as physics, chemistry, or geology; or permission of instructor

3 credits, fall semester

HPH 689 Simulation Models for Environmental and Waste Management

This course is intended for students interested in developing computer models for technology assessment and for environmental and waste management. Concepts developed in EST 595 Environmental Systems Engineering and Analysis are applied to real-world problems. Techniques in model development are presented in the context of applications in surface and groundwater management, acid rain, and health risks from environmental contamination. (Cross-listed as EST 596 or HPH 689).

Pre-requisite: EST 595 or permission of instructor

3 credits, spring semester

HPH 695 Applied Linear Algebra

Review of matrix operations. Elementary matrices and reduction of general matrices by elementary operations, canonical forms, and inverses. Applications to physical problems. (Cross-listed as AMS 505 or HPH 695).

3 credits, fall semester, Lecture

HPH 696 Introduction to Probability

The topics include sample spaces, axioms of probability, conditional probability and independence, discrete and continuous random variables, jointly distributed random variables, characteristics of random variables, law of large numbers and central limit theorem, Markov chains. (Cross-listed as AMS 507 or CET 551 or HPH 696).

3 credits Lecture

HPH 697 Mathematical Statistics

Sampling distribution; convergence concepts; classes of statistical models; sufficient statistics; likelihood principle; point estimation; Bayes estimators; consistency; Neyman-Pearson Lemma; UMP tests; UMPU tests; Likelihood ratio tests; large sample theory. (Cross-listed as HPH 697 or AMS 571).

Prerequisite: AMS 312; AMS 570 is preferred but not required
3 credits Lecture

HPH 698 Data Analysis I

Introduction to basic statistical procedures. Survey of elementary statistical procedures such as the t-test and chi-square test. Procedures to verify that assumptions are satisfied. Extensions of simple procedures to more complex situations and introduction to one-way analysis of variance. Basic exploratory data analysis procedures (stem and leaf plots, straightening regression lines, and techniques to establish equal variance). (Cross-listed as AMS 572 or HPH 698).

Prerequisite: AMS 312 or permission of instructor

Fall, 3 credits Lecture

HPH 699 Design of Experiments

Discussion of the accuracy of experiments, partitioning sums of squares, randomized designs, factorial experiments, Latin squares, confounding and fractional replication, response surface experiments, and incomplete block designs. (Cross-listed as AMS 582 or HPH 699).

Prerequisite: AMS 572 or equivalent

3 credits Lecture

Time and Location of Courses

Most courses are taught on the Health Sciences Center campus and are offered in the late afternoon or early evening.

Student Progress

The following grading system is used in the Graduate Program in Public Health:

A (4.0), A- (3.67), B+ (3.33), B (3.00), B- (2.67), C+ (2.33), C (2.00), C- (1.67), and F (0.00).

Unless specified differently in the course syllabus, course grades on a 100 point scale are: A (93-100); A- (90-92); B+ (87-89); B- (80-82); C+ (77-79); C (73-76); C- (70-72); F (69 or lower).

Students must maintain an overall 3.0 average in the M.P.H. Core. Students may receive a grade less than B- in one course, without being penalized. After earning one course grade less than B-, students will be required to repeat any other courses in which they receive a grade of less than a B-. All courses in the concentration must receive a B or better.

In order to encourage students to develop excellent writing skills, course grades will reflect the quality of writing in course assignments. The specific policy on grading the quality of writing will be prerogative of the course instructor, and it must be explained in the course syllabus.

The M.P.H. degree requirements are rigorous, and students must be able to devote sufficient time to meet the performance standards required. Most students are part time. If the student carries 7-8 credits per semester, including two summers, the M.P.H. degree can be earned in two years. The Program also accommodates full-time study.

Public Health Grand Round Lecture Policy

To provide M.P.H. students with information on emerging and important public health issues, the Graduate Program in Public Health will sponsor a Public Health Grand Rounds lecture series each fall and spring term. M.P.H. students must attend at least 6 grand round lectures each academic year for each term in attendance in the Program, regardless of full- or part-time status. Lectures other than those scheduled as part of the Public Health Grand Rounds lecture series may be substituted on a case-by-case basis, with prior approval from M.P.H. Program Coordinator, and with proper documentation of attendance. Students cannot receive a passing grade in the Capstone Seminar if they have not attended the required number of lectures.

Advising Policy

Whenever possible, students will be assigned to a faculty advisor in the student's concentration. The role of the faculty advisor will be to meet with their advisees at least twice a year to discuss students' progress through the program, assessing growth, acting as a touchstone if they have problems, guiding independent study projects and suggesting a direction for their practicum projects. The faculty advisor will also discuss students' expectations for the future. The meeting can be in person or by phone, whichever is preferred by the student and faculty advisor.

Time Limits

Not including granted leaves of absence, all requirements towards the M.P.H. degree, the B.S./M.P.H. degree, and the M.P.H./M.B.A. degree must be completed within five years from matriculation in the Program. The M.D./M.P.H. concurrent degree can take six years.

Academic Integrity

Intellectual honesty is a cornerstone of all academic and scholarly work. Therefore, the Graduate Program in Public Health views any form of academic dishonesty as a very serious matter. The Program treats each suspected case of academic dishonesty on a case-by-base basis. The course instructor may choose to handle an incident or bring it to the Executive Committee for review and recommendations. In this case, the Director will make the final determination of action, based on the recommendations of the Executive Committee. The student may appeal the decision of the course instructor or the Director, following the guidelines of the Program's Academic Appeal Policy (see *Graduate Program in Public Health Student Handbook*).

Attendance Requirements

Attendance is mandatory, unless there is a medical reason or the student is excused by the Program Director or course instructor. If a course instructor has no written policy in the syllabus regarding the consequences for being absent from class, the Graduate Program in Public Health policy will apply: three or more unexcused absences from class will reduce the final course grade by a full letter grade (e.g., A to B).