

Public Health

Graduate Program Director: Raymond L. Goldsteen

Graduate Program Coordinator: Judith Greene

Degrees awarded: Master of Public Health (M.P.H.), Bachelor of Science in Applied Mathematics and Statistics/Master of Public Health (B.S./M.P.H.), and Master of Public Health/Master of Business Administration (M.P.H./M.B.A.)

M.P.H. Degree

The graduate program in Public Health's Master of Public Health (M.P.H.) degree program is a small, selective program whose mission is to train individuals who wish to integrate public health knowledge, skills, and values into their careers and provide leadership in the field.

The program emphasizes the population health approach to public health. Achieving and maintaining healthy populations, effectively and efficiently, are central to the population health orientation. Effectiveness and efficiency are particularly acute concerns for public health in today's world of limited resources and competing agendas. 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 multidisciplinary collaboration among scholars in the social, behavioral, 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 program is designed for persons with an advanced clinical or related degree or currently studying for such a degree, as well as for students who have only a bachelor's degree. The curriculum is 45 credits and consists of a public health core (24 credits), a practicum, a capstone seminar, and a concentration in Evaluative Sciences, Community Health, or Public Health Practice. The core consists of ten required courses including biostatistics, epidemiology, environmental and occupational health, data management and informatics, research methods, health systems, cost benefit analysis, and the social and

behavioral determinants of health. The practicum is a field-based experience that introduces students to the real world of public health practice. Most courses are offered in the late afternoon and evening, and there are course offerings throughout the year.

The Master of Public Health degree can be obtained concurrently with the M.D. degree. Medical students are advised to begin their coursework for the M.P.H. degree in the summer preceding medical school in order to complete the program within four years. There may be scholarships available for full-time medical students also pursuing an M.P.H. degree.

Facilities

The graduate program in Public Health has established the Center for Health Services and Clinical Outcomes Research (CHSCOR). The CHSCOR is a multidisciplinary research unit that combines expertise in economics, statistics, epidemiology, medicine, and other clinical disciplines to address substantive issues in health care 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 New York State.

The graduate program in Public Health has also established the Center for Public Health and Health Policy Research (CPHHR), which aims to increase knowledge about the determinants of health and illness and the most effective and efficient methods of improving health. 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 include increasing access to medical care, improving opportunities to lead a healthy lifestyle, reducing environmental risks, and establishing programs to decrease health disparities.

The Health Sciences Library serves the educational and research needs of the faculty, staff, and students in the program, the Medical Center, and the University. It also functions as a regional resource, assisting health care professionals throughout Nassau and Suffolk counties. It contains a large, well-equipped computer laboratory for students.

Admission

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.

The admissions requirements for the program are:

A. 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);

B. 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; the requirement for evaluation of transcripts is waived for graduates of foreign medical schools with a current license to practice in the U.S.;

C. Proof of licensure and good standing for licensed health professionals;

D. 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;

E. 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 past 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;

F. Two essays, no more than 500 words each:

Essay 1: How does 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?

G. A personal interview, if requested by the Admissions Committee.

H. Any other requirements of the Graduate School not stated here.

The Admissions Committee considers all factors including grades, GRE (or DAT, MCAT, or GMAT) 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 e-mail 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.

There are special admission requirements for international students.

Faculty

Professors

Edelman, Norman, H. M.D., New York University: Pulmonary medicine; health policy.

Goldsteen, Raymond L., *Graduate Program Director*, Dr.P.H., Columbia University: Fairness and effectiveness of allocation policies for health-care resources.

Jonas, Steven, *Preventive Medicine*, M.D., Harvard University; M.P.H., Yale University: Health policy.

Shroyer, A. Laurie, Ph.D., M.S.H.A. University of Colorado: Clinical sciences research; cardiology.

Research Associate Professor

Goldsteen, Karen, M.P.H., Columbia University, Ph.D., University of Illinois, Urbana: Social determinants of child health and well-being.

Research Clinical Associate Professor

Rice, Nanci, Ph.D., New York University: Women's health.

Assistant Professors

Goodman, Melody, Ph.D., Harvard University: Biostatistics; health disparities.

Hale, Lauren E., Ph.D., Princeton University: Social determinants of sleep; demography.

Meliker, Jaymie, Ph.D., University of Michigan: Environmental health; risk exposure assessment; GIS.

Clinical Assistant Professor

Kaplan-Liss, Evonne, M.D., Mount Sinai School of Medicine; M.P.H., Columbia University: Pediatrics; medical journalism; environmental health.

Affiliated Faculty

Professors

Ferguson, David L., *Technology and Society*, Ph.D., University of California, Berkeley: Quantitative reasoning; problem solving; educational technologies; decision-making.

Rizzo, John A., *Preventive Medicine*, Ph.D., Brown University: Health economics; clinical outcomes research.

Robbins, Charles L., *Social Welfare*, D.S.W., Yeshiva University: Health, violence, and ethics; social justice; gender issues.

Tomes, Nancy J., *History*, Ph.D., University of Pennsylvania: History of medicine and public health.

Associate Professors

Berger, Candyce, *Social Welfare*, Ph.D., University of California, Los Angeles: Child and maternal health.

McCrary, S. Van, *Preventive Medicine*, Ph.D., University of Texas Medical Branch; M.P.H., Johns Hopkins University; J.D., University of Tennessee: Bioethics and health law.

O'Riordan, Thomas, *Medicine*, M.D., University College, Dublin: Asthma, COPD and other respiratory system diseases.

Clinical Associate Professor

Benz Scott, Lisa A., *Health Care Policy and Management*, Ph.D., Johns Hopkins University: Cardiovascular outcomes research.

Assistant Professor

Darowalla, Feroza, *Medicine*, M.D., State University of New York at Syracuse, M.P.H., University of Washington: Work-related lung diseases and asthma.

Clinical Assistant Professor

Coane, Jeannette O., *Nursing*, R.N., M.A., Teacher's College, Columbia University: Clinical practice in end-of-life care; hospice and palliative care nursing.

Adjunct Professors

Chaudhry, Humayun, D.O., M.S., *Commissioner, Suffolk County Department of Health Services*.

Graham, David G., M.D., M.P.H., *Chief Deputy Commissioner, Suffolk County Department of Health Services*.

Winslow, Jason, M.D., M.P.H., F.A.C.E.P., *Associate Professor of Clinical Medicine, New York College of Osteopathic Medicine*.

Zaki, Mahfouz, M.D., *Consultant, Suffolk County Department of Health Services*.

M.P.H. Degree

Curriculum Overview

M.P.H. Core (24 credits)

HPH 500 Contemporary Issues in Public Health (Two credits)

HPH 501 Introduction to the Research Process (Two credits)

HPH 506 Biostatistics I (Two credits)

HPH 507 Biostatistics II (Three credits)

HPH 508 Health Systems Performance (Three credits)

HPH 514 Epidemiology for Public Health (Three credits)

HPH 516 Environmental and Occupational Health (Three credits)

HPH 523 Social and Behavioral Determinants of Health (Two credits)

HPH 562 Data Management and Informatics (Two credits)

HPH 563 Cost Benefit and Cost Effectiveness Analysis (Two credits)

M.P.H. Culminating Experience (Six credits)

HPH 580 Practicum (Three credits)

HPH 581 Capstone Seminar: Population Health Issues (Three credits)

M.P.H. Concentration(15 credits)

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

M.P.H. Concentrations

Evaluative Sciences Concentration

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 and statistical skills necessary to benchmark and evaluate health improvement initiatives in community and health-care settings. The concentration includes courses in advanced biostatistics, 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 such as geneticists, environmental scientists, molecular biologists, and social scientists to develop our understanding of how to prevent disease and disability.

(Courses from Department of Preventive Medicine, Division of Evaluative Sciences, or Department of Economics)

Required Courses

HPH 555 Demographic Theory and Methods (Three credits)

HPH 560 Advanced Biostatistics (Three credits)

HPH 565 Health Services Research Applications (Three credits)

HPH 567 Clinical Outcomes Research (Three credits)

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

HPH 510 Advanced Epidemiology (Three credits)

HPH 513 Decision-Making in Medicine and Public Health (Three credits)

HPH 517 Continuous Quality Improvement Methods (Two credits)

HPH 519 Independent Study (variable credits)

HPH 528 Survey Research Methods (Two credits)

HPH 566 Clinical Trials (Two credits)

HPH 570 Multilevel and Longitudinal Analyses (Two credits)

HPH 646 Continuous Quality Improvement in Healthcare (Three credits)

HPH 657 Demographic Economics I (Zero to three credits)

HPH 664 Economics of Health (Three credits)

HPH 665 Health Economics (Three credits)

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 curriculum includes courses on the theories of

health behavior and health communication, as well as planning, implementing, and evaluating health programs.

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

Students in this concentration must use their Core Selective toward the concentration.

Required Courses

HAS 527 Principles and Practices of Community Health (Three credits)

HAS 545 Ethics and Health Care (Three credits)

HAS 557 Planning and Implementing Community Health Programs (Three credits)

HAS 559 Health Behavior and Risk Reduction (Three credits)

HAS 560 Evaluation of Community Health Programs (Three credits)

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

Public Health Practice Concentration

Students in this concentration are required to take the History of Public Health and Medicine, Strategic Management of Public Health Organizations, Demographic Theory and Methods, Public Health Law, and Management Accounting and Financial Decision Analysis (ten credits total). The remaining three credits are selected 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.

Required Courses

HPH 524 Strategic Management of Public Health Organizations (Two credits)

HPH 530 History of Public Health and Medicine (Two credits)

HPH 549 Public Health Law (Two credits)

HPH 555 Demographic Theory and Methods (Three credits)

HPH 660 Management Accounting and Financial Decision Analysis (Three credits)

Selectives (select three credits from courses below; each course may not be offered every year)

(Courses from Department of Preventive Medicine, Division of Evaluative Sciences)

HPH 504 Surveillance and Control of Infectious Diseases (Two credits)

HPH 505 Topics in Population Health (One-half to three credits)

HPH 510 Advanced Epidemiology (Three credits)

HPH 513 Decision-Making in Medicine and Public Health (Three credits)

HPH 517 Continuous Quality Improvement Methods (Two credits)

HPH 519 Independent Study (variable credits)

HPH 528 Survey Research Methods (Two credits)

HPH 542 Introduction to Global Health (Two credits)

HPH 560 Advanced Biostatistics (Three credits)

HPH 565 Health Services Research Applications (Three credits)

HPH 566 Clinical Trials (Two credits)

HPH 567 Clinical Outcomes Research (Three credits)

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

HAS 545 Ethics and Health Care (Three credits)

HAS 559 Health Behavior and Risk Reduction (Three credits)

(Course from Department of Molecular Genetics and Microbiology)

HPH 659 Biology of Cancer (One credit)

(Courses from School of Social Welfare)

HPH 620 Parameters of Social and Health Policy I (Three credits)

HPH 621 Parameters of Social and Health Policy II (Three credits)

HPH 626 Overview of Substance Abuse (Two credits)

HPH 630 Chemical Dependency in Special Populations (Two credits)

HPH 631 Cultural Competence: An Ingredient Enhancing Treatment Outcomes (Two credits)

HPH 632 Psychopathology and Psychopharmacology (Two credits)

HPH 633 Childhood Sexual Abuse and Long-Term Sequelae (Two credits)

HPH 634 Program Evaluation (Three credits)

HPH 635 Seminar on Family Violence (Two credits)

HPH 636 Community Analysis and Health Promotion (Two credits)

HPH 638 Qualitative Health Research Methods (Three credits)

(Course from Department of Anthropology)

HPH 658 Use of Remote Sensing and GIS in Environmental Analysis (Three credits)

(Courses from Department of Economics)

HPH 657 Demographic Economics I (Zero to three credits)

HPH 664 Economics of Health (Three credits)

HPH 665 Health Economics (Three credits)

(Courses from School of Marine and Atmospheric Sciences or Department of Technology and Society)

HPH 653 Introduction to Homeland Security (Three credits)

HPH 654 Nuclear Safeguards and Security (Four credits)

HPH 655 Chemical and Biological Weapons: Safeguards and Security (Four credits)

HPH 656 Risk Assessment, Regulation, and Homeland Security (Four credits)

HPH 661 Methods of Socio-Technological Decision-Making (Three credits)

HPH 662 Systems Approach to Human-Machine Systems (Three credits)

HPH 671 Marine Pollution (Three credits)

HPH 672 Marine Management (Three credits)

HPH 673 Groundwater Problems (Three credits)

HPH 675 Environment and Public Health (Three credits)

HPH 676 Environmental Law and Regulation (Three credits)

HPH 683 Air Pollution and Air Quality Management (Three credits)

HPH 684 Environmental and Waste Management in Business and Industry (Three credits)

HPH 686 Risk Assessment and Hazard Management (Three credits)

HPH 687 Diagnosis of Environmental Disputes (Three credits)

HPH 688 Principles of Environmental Systems Analysis (Three credits)

HPH 689 Simulation Models for environmental and Waste Management (Three credits)

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 and 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 Master 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./M.P.H. 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:

A. Overall Stony Brook undergraduate GPA of at least 3.3

B. GPA in courses required in the Applied Math major of at least 3.5

C. Letters of recommendation from two faculty who rank the student in the top 10 percent 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 eight of the 12 credits counting as upper-division electives in the Applied Mathematics and Statistics major including: HPH 506, Biostatistics I (two credits), HPH 507 Biostatistics II (three credits), and HPH 555 Demographic Theory and Methods (three 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 ten semesters. For the first three years (first six semesters) of a student's career, he/she will complete required undergraduate coursework for DEC/General Education and the undergraduate major. During the fourth year (seventh and eighth semesters), the student would take a combination of undergraduate and graduate courses. During the fifth year (ninth and tenth semesters) the student would 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 to 20 credits (seven courses) of overlap, which reduces the total number of credits in the joint program to 71 to 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. 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.

Curriculum Overview

M.P.H. Core (20 Credits)

- HPH 500 Contemporary Issues for Public Health (Two credits)
- HPH 506 Biostatistics I (Two credits)
- HPH 507 Biostatistics II (Three credits)
- HPH 514 Epidemiology for Public Health (Three credits)
- HPH 516 Environmental and Occupational Health (Three credits)
- HPH 523 Social and Behavioral Determinants of Health (Two credits)
- HPH 562 Data Management and Informatics (Two credits)

M.B.A. Requirements (24 credits)

- MBA 502 Finance (Three credits)
- MBA 504 Financial Accounting (Three credits)
- MBA 505 Marketing (Three credits)
- MBA 506 Leadership, Teamwork and Communications (Three credits)
- MBA 511 Technological Innovations (Three credits)
- MBA 512 Business Planning and Strategic Management (Three credits)

MBA 589 Operations Management (Three credits)

MBA 592 Organizational Behavior (Three credits)

M.P.H. Concentration Requirements

Evaluative Sciences Concentration

HPH 555 Demographic Theory and Methods (Three credits)

HPH 560 Advanced Biostatistics (Three credits)

HPH 565 Health Services Research Applications (Three credits)

HPH 567 Clinical Outcomes Research (Three credits)

or

Public Health Generalist Concentration

HPH 530 History of Public Health and Medicine (Two credits)

HPH 555 Demographic Theory and Methods (Three credits)

M.B.A. Electives (six credits)

M.B.A./M.P.H. Overlap Courses

Evaluative Sciences Concentration

MBA 503 Data Analysis and Decision Making (Three credits) (in lieu of M.P.H. selective)

MBA Elective (in lieu of MPH selective)

HPH 549 Public Health Law (Two credits) (in lieu of MBA 507)

HPH 508 Health Systems Performance (Three credits) (in lieu of MBA 507 Ethics and Law)

HPH 563 Cost Benefit and Cost Effectiveness Analysis (Two credits) or

MBA 501 Managerial Economics (Three credits)

HPH 580 Practicum (Three credits) or

MBA 521 Industry Project

Public Health Practice Concentration

HPH Concentration Elective (Three credits) (in lieu of MBA elective)

HPH 549 Public Health Law (Two credits) (in lieu of MBA 507)

HPH 508 Health Systems Performance (Three credits) (in lieu of MBA elective)

HPH 563 Cost Benefit and Cost Effectiveness Analysis (Two credits)

or

MBA 501 Managerial Economics (Three credits)

MBA 589 Operations Management (Three credits)
(in lieu of HPH 524 Strategic Management of Public Health Organizations)

MBA 504 Financial Accounting (Three credits) (in lieu of HPH 660)

MBA 503 Data Analysis and Decision Making (Three credits)
(in lieu of HPH Concentration Selective)

Courses

Core Courses

HPH 500 Contemporary Issues in Public Health

This course will mainly examine the role of medicine and public health in improving the health of the Suffolk County population. Students will be exposed to Field Preventive Medicine as performed by public health practitioners including investigations of infectious disease outbreaks and cancer clusters. As Suffolk is one of the most heavily mosquito- and tick-infested counties in the country, the course will emphasize arthropod-borne diseases. The impact of drinking water standards and frequently encountered contaminants such as synthetic organic compounds and pesticides will be studied. Sanitary regulations and public health law will be discussed, as will bioterrorism and the modes most threatening to residents of Long Island. Global issues will include infectious diseases and food-borne illnesses that affect morbidity and mortality worldwide.
2-3 credits, ABCF grading

HPH 506 Biostatistics I

This two-term course 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. This course includes introductions in 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.
2-3 credits, ABCF grading

HPH 507 Biostatistics II

This two-term course 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. 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: High school algebra
3 credits, ABCF grading

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, ABCF grading

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 design 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, ABCF grading

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, ABCF grading

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, individ-

ual behavior, and genetics and the interaction of these factors. Also covered is the measurement of population health, sources of data about population health, and methods for assessing population health improvements.
2 credits, ABCF grading

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, ABCF grading

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, ABCF grading

Culminating Experience Courses

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.
2-3 credits, ABCF grading

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, S/F grading

Evaluative Sciences Concentration (Required Courses)

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 regres-

sion, life tables, and survival analysis.

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

3 credits, ABCF grading

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, ABCF grading

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.

3 credits, ABCF grading

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 service research.

2-3 credits, ABCF grading

HPH 567 Clinical Outcomes Research

This course will: (i) introduce the basic concepts, methods, and topics in clinical outcomes research; and (ii) introduce the skills necessary to evaluate the efficacy, effectiveness, and cost effectiveness of devices, intervention, processes of care, and health-care delivery systems. The specific topics to be covered include: outcomes measurement, population health assessment, valuing health outcomes, risk adjustment, case-mix adjustment methods, effectiveness, efficacy, and cost effectiveness in clinical outcomes research, and analysis methods.

2 credits, ABCF grading

Community Health Concentration (Required Courses)

HAS 527 Principles and Practice of Public and Community Health

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 com-

ponents. 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, ABCF grading

HAS 545 Ethics and Health Care

Provides an overview of ethics in health care in a rapidly changing society. Teaches students to approach ethical dilemmas using theoretical frameworks and decision making processes. Explores ethical issues surrounding health-care reform and public health policy and includes distribution of resources and rationing of services. Introduces students to the ethical perspectives of euthanasia, reproduction, transplants, and HIV/AIDS through case studies. Reviews classic cases in health-care ethics and their shaping of health policy. Discusses patient education and professional codes of ethics and standards.

3 credits, ABCF grading

HAS 557 Planning and Implementing Community Health Programs

Prepares students to conduct needs assessments of various diverse populations and to plan, implement, and evaluate programs to meet the needs. Plans include detailed goals, behavioral objectives, methods, resource and budget allocation, including grant and contract considerations.

3 credits, ABCF grading

HAS 559 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 concepts 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, ABCF grading

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.

Prerequisite: HAS 557

3 credits, ABCF grading

Public Health Practice Concentration (Required Courses)

HPH 524 Strategic Management of Public Health Organizations

This course introduces concepts and tools needed to plan and implement health programs within a public health setting. It covers evidence-based best practices that will ensure the effectiveness and efficiency of health programs, including performance issues related to planning, developing, managing, and evaluating.

2 credits, ABCF grading

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, ABCF grading

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.

2 credits, ABCF grading

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, ABCF grading

HPH 660 Managerial 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.

Fall, 3 credits, ABCF grading

Selective Courses

HPH 504 Surveillance and 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 eval-

uation 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, ABCF grading

HPH 505 Topics in Population Health Studies

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

1-3 credits, ABCF grading

May be repeated for credit

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 514 and HPH 511 or other mathematically oriented introduction to statistics

3 credits, ABCF grading

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.

Prerequisite: Biostatistics I and II; introductory economics is recommended but not required

3 credits, ABCF grading

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, ABCF grading

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.

Prerequisite: Permission of program director

1-6 credits, ABCF grading

May be repeated up to five times for credit

HPH 521 Seminar in Evaluative Sciences

This course introduces novice researchers to the steps required to plan a clinical research project and teaches some of the most basic principles involved in each step. This eight-hour seminar will discuss reviewing the literature and building a library; developing a research project including study design, sampling, data collection and management, data analysis, and presenting results. Grant resources and the application process; copyright rules; human subjects protection and institutional review boards (including HIPAA); and when and how to use a statistics consultant will also be introduced. Students are encouraged to use this seminar to develop their own research idea and leave the seminar with a timeline for achieving their own research goals.

0.5-3 credits, ABCF grading

May be repeated three times for credit

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, ABCF grading

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, ABCF grading

HPH 542 Introduction to Global Health

This course will provide health personnel with a basic awareness of the problems of the world's 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 programs 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, ABCF grading

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, ABCF grading

HPH 570 Multilevel and Longitudinal Analyses

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, ABCF grading

HPH 620 Parameters of Social and Health Policy I

Introduces students to U.S. social policy, with a 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, ABCF grading

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, ABCF grading

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 of 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, ABCF grading

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, ABCF grading

HPH 631 Cultural Competency: An Ingredient in 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 United States. 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, ABCF grading

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, ABCF grading

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, ABCF grading

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 including the legal system and programs for batterers by utilizing guest speakers from Suffolk County agencies.

2 credits, ABCF grading

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, ABCF grading

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. Crosslisted with HWC 588.

Prerequisites: HWC 511 and 512

2-3 credits, ABCF grading

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. Crosslisted with ESM 550 and HPH 643.

Prerequisites: Undergraduate level biology, chemistry, and physics

Fall and spring, 3 credits, ABCF grading

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. Crosslisted as EST 553 or HPH 654.

Prerequisite: Undergraduate equivalent physics and chemistry

Fall, spring, 4 credits, ABCF grading

HPH 655 Chemical and Biological Weapons: Safeguards and Security

This course deals with the fundamentals of chemistry and biochemistry 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. Crosslisted with EST 554 and HPH 653.

Prerequisite: Undergraduate equivalent chemistry, biochemistry, and microbiology

Fall, spring, 4 credits, ABCF grading

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 regulations, discouraging terrorism, disaster preparedness, and various acts passed by the U.S. Congress to regulate water, air, and controlled substances. Crosslisted as EST 560 and HPH 656.

Prerequisite: Undergraduate or equivalent physics, math, and chemistry

Fall and spring, 4 credits, ABCF grading

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 Economics or permission of the graduate program director

Spring, 0-3 credits, ABCF grading

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.

Spring, 3 credits, ABCF grading

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.

Spring, even years, 1 credit, ABCF grading

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
Fall, 3 credits, ABCF grading

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.

Prerequisite: EST 581 or permission of instructor; graduate standing in the Department Spring, 3 credits, ABCF grading

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. Coscheduled as ECO 646 or HPH 664.

Prerequisites: ECO 501, ECO 521; graduate standing in Economics or permission of the Graduate Program Director Spring, 0-3 credits, ABCF grading

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, ABCF grading

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. Coscheduled as MAR 512 or HPH 671.

Prerequisites: MAR 502, MAR 503 Fall, 3 credits, ABCF grading

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. Crosslisted as HPH 672 or MAR 514.

Prerequisite: Permission of instructor Spring, 3 credits, ABCF grading

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. Crosslisted as MAR 521 or HPH 673.

Prerequisite: Permission of instructor Summer, 3 credits, ABCF grading

HPH 675 Environment and Public Health

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/suburban and coastal setting. Crosslisted with HPH 675.

Prerequisite: Permission of instructor Spring, 3 credits, ABCF grading

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, ABCF grading

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 climactic 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. Coscheduled as EST 593 or HPH 686.

3 credits, ABCF grading

HPH 687 Diagnosis of Environmental Disputes

Diagnosis of disagreements about environmental and waste problems. Tools for evaluating disputes about (1) scientific theories and environmental models, (2) definitions and analytical methodologies for estimating risk, "real" cost, net energy use, and life-cycle environmental impact, (3) regulatory and legal policy, (4) siting of controversial environmental facilities, and (5) fairness and other ethical issues. These diagnostic tools are brought to bear upon case studies of pollution prevention, recycling, nuclear waste disposal, and climate change. This course is offered as CEY 594, EST 594, and HPH 687.

3 credits, ABCF grading

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, optimiza-

tion, and numerical and analytical solutions to differential equations. Crosslisted 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 Fall, 3 credits, ABCF grading

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. Coscheduled as EST 596 or HPH 689.

Prerequisite: EST 595 or permission of instructor Spring, 3 credits, ABCF grading

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, ABCF grading

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, ABCF grading

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, ABCF grading

HPH 539 Global Epidemiology and 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, ABCF grading

HPH 540 Medical Anthropology, Culture, and 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, ABCF grading

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, ABCF grading

HPH 544 Development and 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, ABCF grading

HPH 545 Clinical, Laboratory, and Epidemiological Parasitology and 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, ABCF grading

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, ABCF grading

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, ABCF grading

HPH 568 Overview of Molecular Medicine and 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, ABCF grading

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, ABCF grading

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-analy-

sis 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, ABCF grading

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, S/F grading

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, ABCF grading

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. Crosslisted as CEM 539 or HPH 649.

Prerequisite: Permission of instructor

3 credits, ABCF grading

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.

Fall, 3 credits, ABCF grading

HPH 674 Environmental Toxicology and Public Health

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

Spring, 3 credits, ABCF grading

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. Crosslisted as AMS 505 or HPH 695.

Fall, 3 credits, ABCF grading

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. Note: Crosslisted as AMS 507 or CET 551 or HPH 696.

3 credits, ABCF grading

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. Crosslisted as HPH 697 or AMS 571.

Prerequisite: AMS 312; AMS 570 is preferred but not required

3 credits, ABCF grading

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). Crosslisted as AMS 572 or HPH 698.

Prerequisite: AMS 312 or permission of instructor

Fall, 3 credits, ABCF grading

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. Crosslisted as AMS 582 or HPH 699.

Prerequisite: AMS 572 or equivalent
3 credits, ABCF grading

