GRADUATE PROGRAM IN PUBLIC HEALTH

CURRICULUM GUIDE

ACADEMIC YEAR 2014-2015
Explanation of Course Numbering System

The following course guide includes courses that begin with the prefixes MPH and CLR. The guide is organized according to the below areas of Research Focus.

Courses with the prefix “MPH” are those that are offered through the Master of Public Health Program. Courses with the prefix “CLR” are those that are offered through the Clinical Research Education Program.

Guide to courses with the MPH prefix:

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The third number denotes the level:

0 Introduction
1 Intermediate
2 Advance

The fourth is a number for the course itself.

Course Pre-Requisites

Please note: some courses require that students have taken certain pre-requisites. Oftentimes these pre-requisites are fulfilled when the student takes the core introductory level courses. Students will not be eligible to take a course if they lack the required pre-requisites. Please refer to the course description in the Course Guide for information on a course’s pre-requisites.
MPH0001  
**Introduction to Public Health**

Course Directors: Philip Landrigan, MD, MSc and Kristin Oliver, MD  
Fall Term  
Tuesdays  
2 credits

This introductory course will provide a broad overview of public health – its history, triumphs and challenges, as well as its prospects for the future. The course will provide a strong foundation for students entering the Master of Public Health Program. A principal goal of the course is to give students an understanding of the structure and function of the public health system in the United States and internationally. Some of the leading figures in public health in this country and abroad will be invited to present lectures, and they will provide students with a sense of the breadth and depth of public health as well as a sense of the extraordinary range of career opportunities that exist in this ever changing field.

MPH0002  
**Health Promotion & Disease Prevention for the Non-Healthcare Professional**

Course Directors: Emily Senay, MD, MPH and Mary Foley, MS, EdD  
Fall Term  
Wednesdays  
2 credits

Preventive Medicine is the branch and practice of medicine focused on promoting health thereby preventing disease from both an individual and population perspective. Preventive Medicine specialists study the health of populations, develop screening guidelines in asymptomatic people, determine factors for disease and propose evidence-based treatment algorithms and health promotion strategies and evaluation of those strategies. Preventive Medicine and public health are strongly linked through a shared focus on health surveillance of health indicators to better understand the health of the public.

Designed for the non-healthcare professional, this course introduces students to the fields of health promotion and disease prevention with emphasis on developing effective interventions based on the PROCEDE-PROCEED model. The course covers basic preventive medicine and public health concepts such as surveillance methods, current goals and guidelines for screening and prevention on a local and national level as well as focusing on the top causes of morbidity and mortality in the United States. Specific topics will include the latest methods to detect and prevent cardiovascular diseases, cancers, infectious diseases and injuries. Through in-class discussion and exercises students will assess selected community health and quality of life needs, and learn how to design, implement and evaluate health promotion and other health programs to meet those needs. This course is designed for students in the first year of the MPH Program who have little or no training or experience in public health or healthcare.

MPH0003  
**Current Topics in Clinical Preventive Medicine**

Course Directors: Elizabeth Garland, MD and Kristin Oliver, MD  
Spring I Term- Every other year - Next offered 2015  
Wednesdays  
3 credits

This course builds on the fundamental aspects of clinical prevention and the United States Preventive Services Task Force Guidelines. Designed for the healthcare professional, the course
will include discussions about new evidence-based approaches that guide clinicians regarding the appropriateness and utility of new preventive services, screening tests, guidance for counseling patients, and an examination of current interventions at the community level, in addition to current controversies and research in the prevention field.

**MPH0005 Geographic Information Systems (GIS) for Public Health**

_Course pending.... Please contact Program Administration for more information._

Course Director: TBA  
3 credits

Geographic Information Systems (GIS) are used by public health professionals to better understand relationships between health and the environment, the geographic and temporal transmission of disease, and access to health care. This rapidly-changing field is seeing an expansion in the application of geography to better understand a number of health outcomes, thanks in part to new web-based tools and desktop technologies that make the use of GIS data and methods more accessible to a broader audience. This hands-on course will focus on the fundamentals of geographic information and how the technology can be applied to public health. Topics covered include an introduction to key considerations for applying GIS to public health; how to find and prepare demographic and health data for mapping; standard cartographic principles; geocoding; and an introduction to spatial analysis methods. The course will also illustrate how geographic data can be moved between more traditional GIS software (ESRI’s ArcGIS) and newer technologies (Google Earth and open source GIS applications).

**MPH0006 Public Health Ethics/Medical Ethics**

Course Directors: Stephen Baumrin, LLd, PhD and Daniel Moros, MD  
Spring II Term  
Thursdays  
3 credits

This course examines "classic" and emerging issues in biomedical ethics paying particular attention to the history of medicine and the nature of scientific thought as it relates to medical ethics. While many issues in biomedical ethics seem timeless such as our concerns about the withholding of treatment, abortion, truth-telling - others have arisen out of the development of an increasingly scientific medicine beginning in the 1700s. It is the availability of well confirmed effective treatments that forces us to wrestle with such questions as the propriety of medical intervention over the objection of the patient, the treatment of children over the objection of their parents, the right of all citizens to health care, the regulation of the sale of body parts for transplantation, and numerous circumstances arising out of assisted reproduction. In the not too distant past it would have seemed bizarre to consider the adjudication of competing rights when one woman contracts to rent the uterus of a surrogate to bear through in vitro fertilization the embryo formed from the egg of a third individual. The current revolution in biotechnology, microelectronics and nanotechnology continuously produces new issues. What is the meaning of confidentially in a world where an enormous amount of information about each of us can be extracted rapidly from numerous searchable databases? What is the moral status of the embryonic stem cell derived from a discarded embryo, or a non-human animal? How are we to regulate cloning and our ability to shape and alter the human genome? We now implant electrodes into the brains of patients with Parkinson's disease and essential tremor. Soon we may be treating depression, disorders of impulse control, anxiety and phobias electronically. Does such technology present different issues as compared with today's drug and surgical therapies?

Updated August 2014
We will also be challenged by the products of bioengineering. We already have prosthetics that remarkably link the brain directly to external mechanical devises and further alter the meaning of disability.

**MPH0007 Public Health Policy, Medicine & Social Justice**

Course Directors: Rosamond Rhodes, PhD and Ian Holzman, MD  
Spring I Term  
Wednesdays  
3 credits

Justice is a major concern in theoretical ethics and political philosophy and a huge literature is devoted to trying to explain just what it entails. In this course our aim will be to examine a broad spectrum of issues in medicine, medical research, and public health that raise questions about justice. In light of these critical examples, we shall review and critique an array of philosophical views on justice. Throughout the seminar we shall be engaged in two activities: (1) using clinical dilemmas and health policies as touchstones for developing a clear understanding of justice, and (2) developing an understanding of how theories of justice apply in different public health and medical contexts. By going from practice to theory and from theory back again to practice we shall advance our understanding of the theoretical literature as well as the requirements of justice in public health, medicine and other areas of the social world.

This course will begin with an examination of the allocation of medical resources that raise questions about justice. It will then move on to examine contemporary work on justice and review of some theoretical work by authors who focus their attention on justice in medicine (Norman Daniels & Paul Menzel). As the seminar progresses, we shall develop an understanding of how the U.S. happens to have developed the mechanisms that we now have for the delivery of health care. We shall examine how medical resources are actually distributed here, elsewhere, and globally, and in various contexts. We shall consider ways in which those allocations do and do not express justice. We shall also explore some of the problems that become apparent when you attend to the special needs of social groups (e.g., the poor, children, women, the elderly, African-Americans) and examine dilemmas and conflicts that are raised by issues such as the treatment of premature and compromised neonates.

**MPH0008 Introduction to Public Health Nutrition**

Course Directors: Laurie Tansman, MS, RD, CDN  
Fall Term  
Mondays  
2 credits

Public Health Nutrition has become more exciting than ever with a multitude of new strategies to improve public health! Because of all the excitement that each new initiative generates, there are always controversies coupled with confusion. This course is designed to provide an introductory overview of Public Health Nutrition concepts and issues while educating the student about the most current Public Health Nutrition Issues. It will deliver a broad approach to the factors that comprise Public Health Nutrition, including nutrition epidemiology, nutrition guidelines, government nutrition programs and especially an understanding of who makes public health nutrition recommendations and the underlying politics. While certain basics are always covered, each semester is unique as the most current public health initiatives are addressed. The course director has given public testimony on many of these issues at the local, state and national level. Students will be provided with the opportunity to give their opinion in a public format on many of the newest changes and recommendations planned for 2014 – 2015.

Updated August 2014
MPH0010 Zoonoses: An Emerging Public Health Issue

Course Director: Stephanie Factor, MD, MPH
Spring II Term 3 credits
Thursdays

Zoonoses, diseases transmitted from animals to humans, are increasingly being recognized as emerging or re-emerging disease threats to public health. This course will explore the interactions between physicians, veterinarians, and public health professionals; provide an understanding of the public health consequences of these diseases; and explore preventive measures. Finally, we will set the framework for discussions of agents of bioterrorism and the public health response to these threats. The course attracts top speakers from across the country in the fields of public health, infectious diseases, veterinary medicine, and the biomedical sciences.

MPH0012 Advocacy in Action: How to Solve Problems in Public Health

***New Course

Course Director: Cappy Collins, MD
Fall Term 3 credits
Tuesdays

This course will cover fundamental concepts in health advocacy. These concepts can guide program and policy developments in the service of helping populations, and they accommodate variables including the scope of the efforts, the level of involvement of the population, the utilization of other stakeholders and the sustainability of the efforts. Students in this course should expect to develop their own advocacy project proposals, or assess and/or contribute to existing projects, as individuals or in teams. Empowering other people starts with empowering oneself. This course is intended for students who have completed 1-2 terms in the program.

MPH0020 Thesis Workshop

Course Director: Kristin Oliver, MD (Fall)
Fall, Spring I, Spring II 1 credit
Mondays

This course is required for students who will write a master's thesis as a final project. The thesis is more than a paper—it is a major independent project that requires you to design, implement, and present professional work of public health significance. The successful completion of a thesis signals that you have mastered the art of scholarly research, can synthesize complex information, and can write clearly and effectively. This course will help you design your thesis, write a thesis proposal, and give and receive feedback from peers. The course is heavily interactive. We will work with materials provided primarily by the students. By the end of the term, you should be ready to complete your thesis. This course is the prerequisite for registering for MPH0099 Thesis.

Prerequisites: Students must complete MPH0320 Research Methods. Students must have their Thesis Proposal Outline completed and their Statement of Thesis Support submitted to the Program Office before registering for this course.

Updated August 2014
MPH0021  Seminar in Applied Preventive Medicine

Course Director: Elizabeth Garland, MD, MS and Emily Senay, MD, MPH
Full Year Course  2 credits
Wednesdays - Morning

This weekly seminar focuses on current local, national, and international issues in public health and preventive medicine. Discussions center on critical review of new published literature in public health and include topics related to health policy, economic and legal issues, and the impact of these issues on the health of populations. There will be didactics on public health ethics, risk communications and preventive medicine research as well as critical review of enrolled student research or theses. On a rotating basis, each student is responsible for setting the agenda and chairing seminar discussions.

Pre-requisites:  MPH0300 Introduction to Biostatistics
                MPH0400 Introduction to Epidemiology

Students who are not Residents in the Department of Preventive Medicine must receive permission from Course Director prior to enrolling in this course.
MPH0103  
**Strategic & Program Management**

Course Director: Gary Rosenberg, PhD  
Fall Term  
Thursdays  
3 credits

This course is an introduction to understanding public health and health management, program planning, implementation and evaluation. Through readings, class discussion and the analysis of case studies students will have an opportunity to explore and identify key issues impacting public health and health programs; formulate and evaluate alternative solutions to problems; learn verbally and in writing to present analysis of managerial problems and proposals. The course will emphasize skill development in the management of mission, program operations and the business aspects of health organizations.

MPH0104  
**Healthcare in Communities & the Public Sector**

Course Director: Richard Roberts  
Spring II Term  
Tuesdays  
3 credits

A major focus of this class is on understanding how community life and health are related. Students will learn how to analyze communities, compare data regarding the health status of communities and to compare selected communities to each other. Case material will be used to emphasize the multiple ways one can assist communities as a whole and those at risk for health problems. Exemplars will be offered by guest lecturers involved in community change. Social and economic factors will be identified that affect community health status.

MPH0105  
**Health Economics**

Course Directors: Alexander S. Preker, PhD  
Spring I Term  
Thursdays  
3 credits

The intent of this course is to train future public health practitioners on the economic and political questions that emerge in the process of developing health systems.

In this course, we will examine real time economics and political efforts to improve national health at different scales in Nigeria (national), India (state-based), and the United States (district level). Given the complexity of this challenge, a practitioner's eye is required to guide the mechanics of a scalable and sustainable health system. We will focus on the alignment of governance, community participation, and information feedback in the context of economic constraint required to successfully meet this high level goal. Each of these initiatives is being technically advised by an interdisciplinary team that the course instructor plays a primary role. Using case-based methodology to explore implementation challenges under economic constraint, we focus on the intersection of community need, technical feasibility and political will in building health systems. We will highlight the cumulative nature of content and situational analyses to examine three recurring course themes: (1) the components of a dynamic health system in the context of integrated community development, (2) the importance of regional and local context in planning for scalability and sustainability, and (3) bridging the gap between
policy and implementation. Each of these themes will be cross-linked by the economic rationale that drives health system implementation.

The major course output will be a guided, semester long exercise in writing a strategic development planning from a public health professional’s perspective to guide political and economic decision making. The focus on health systems is a concrete means to understand the more general competencies involved in the application of economic analysis, which include political, financial, technical and organizational skills

**MPH0106 Public Health: Politics and Policy**

Course Director: TBA  
Spring II Term  
DAYS TBA  
3 credits

Why did U.S. health reform pass in 2010 when historically large scale reform of this magnitude has been blocked? How will the states implement health reform and will it be defeated through a constitutional challenge? Why is HIV prioritized over other health areas even though the global burden is lower than other diseases? How are new public-private partnerships transforming the financing of health systems? This course aims to assist students in understanding how political processes shape health policy and health outcomes both domestically and internationally.

Through an introduction to theoretical and applied concepts in public policy and political science, students will learn how to assess the political feasibility of different health policy options and how to craft persuasive policy briefs targeting decision makers at all levels of government. In addition to theoretical material, the course will draw on insights from a concrete set of case studies across a variety of health policy topics including: the politics of health reform in the U.S., global health agenda setting, and health system strengthening in developing countries among other topics.

**MPH0107 Accounting & Budgeting for Public Health Administration**

Course Directors: Frank Cino  
Spring II Term  
Mondays  
2 credits

Financial statements enable managers to evaluate the performance of an organization and assess its financial position. Budgets, based on forecasts, take the form of projected statements and serve as an important managerial tool for planning and control purposes. This course provides an introduction the accounting, budgeting and financial reporting techniques commonly used in the health care and not-for-profit environment. Emphasis is placed on enabling students to become comfortable with financial analysis, budgets and commonly-used financial terminology so that they can effectively address financial matters they will encounter in leadership roles in health care and not-for-profit organizations.
Why is Gilead Science's new Hepatitis C pill (Sovaldi) so expensive ($84,000 for a course of therapy, about $1,000 a pill) and is its approximately 90% cure rate worth the cost? How important is cost in health policy decisions? Why are pharmaceutical companies more and more developing "orphan" drugs, that is, drugs for rare diseases. In the current healthcare environment in the US, there is rationing of healthcare, often not on an objective basis. What makes a medication or device cost-effective or not? Authorities in many countries are using cost-effectiveness analyses (CEA) to make reimbursement decisions and cost of treatments and diagnostics (e.g., mammograms) are being hotly debated. How are these analyses being done? Learn the principles of CEA, get hands-on experience and tutorials with software often used for these types of evaluations, hear a key pharmaceutical company researcher discuss his challenges in use of CEA in emerging markets/third-world countries, see user-friendly computer programs that have been developed based on these analyses and debate the use of CEA in making life-or-death reimbursement decisions. This introductory course focuses on the major concepts and principles of pharmacoeconomics, with particular emphasis on modeling, methodologies and data sources. Students will learn about the international use of pharmacoeconomics in drug approval, regulation and pricing. Examples of pharmacoeconomic models used by the pharmaceutical industry and in government will illustrate the theoretical lessons.

Pre-requisites: None

Human resource management in health organizations and the relationship between HR, organizational strategy, and organizational behavior is the focus of this course. We will analyze human work behavior at the individual, interpersonal, team and organizational levels. Included are topics such as motivation, communication, group and team dynamics, leadership, decision making, job and organization design, conflict management, organizational culture and identity, and organizational change. We will apply organizational behavior theory and explore the factors that affect behavior, performance, and job satisfaction of people working in organizations.

The objectives of the course will be to understand the characteristics and processes of work organizations; to successfully develop management skills; to apply the skills of management and impact organizational behavior and performance.
MPH 0112  Public Health Law  ***New Course

Course Director: Marina Lowy, JD and Beth Essig, JD
Fall Term
Wednesdays

Familiarity with the legal environment is essential to an understanding of public health management and regulation, and to understanding assets and resources available to improve community health. This course presents selected topics at the intersection of public health and law. The course introduces students to the legal system and to the process by which laws and policies are formulated as well the role of the law in shaping the provision of health services, disease and injury prevention, quality improvement, health insurance, and other aspects of public health. Issues at the forefront of health care law will be discussed, including healthcare reform, incentives for improving quality of care, regulation of unhealthy conduct and more. Faculty will include attorneys specializing in the selected topics, as well as public health physicians and advocates.

MPH 0120  Managed Care & Health Insurance

Course Director: Richard Bernstein, MD
Spring I Term
Tuesdays

Following a brief survey of the 3000 year history of insurance, the course will focus on health insurance and reform in this country before examining the variety of techniques used by managed care organizations and various national health systems to balance health expenditures, access and quality of healthcare.

Through weekly Socratic-type discussions about contemporary healthcare controversies, the course will help develop students' critical thinking about health policy alternatives and managerial decision-making. Feedback on short weekly essays, student presentations, and a final essay will help students improve their written and presentation skills.

MPH 0121  Capstone Seminar in Health Care Management  ***New Course

Course Director: Gary Rosenberg, PhD
Fall Term
Mondays

This course is will assist students in designing and implementing their capstone project. Students will examine the formulation and implementation of business strategies in health organizations, models of strategic management and change, and the role of stakeholders in the strategic management process. They will also review specific analytical tools used in strategy formulation and presentation. This course is limited to students entering their second year in the Health Care Management track.

Updated August 2014
Socio-Behavioral Health

**MPH0201 Introduction to Socio-Behavioral Health**

Course Directors: Mary Foley, MS, EdD and Michael Diefenbach, MD  
Spring I Term  
Wednesdays  
3 credits

This core course provides an overview of the social and behavioral sciences and their importance in the interdisciplinary field of public health. A primary emphasis is on the social ecological model, its application to public health issues, and its use in the development of policies, strategies, interventions and programs. The course content will introduce students to several relevant social and behavioral theories as well as a range of community health assessment and planning models used by public health professionals in both domestic and international venues. In addition, some lectures will focus on specific diseases that have a detrimental effect on public health and finally, a few lectures are reserved to provide students with insight into public health organizations. Through a series of assignments, students will enhance their knowledge and awareness of the role of social and behavioral sciences in public health and its relevance to their specific discipline.

This course will be capped at 30 students. Registration will be based on first come, first-served basis.

**MPH0203 Introduction to Medical Anthropology**

Course Director: Victor Torres-Velez, PhD  
Spring II Term  
Mondays  
3 credits

This course provides an introduction to the major theoretical perspectives and themes in contemporary medical anthropology. Medical anthropology examines the concepts and beliefs about illness, healing, and the body across cultures.

Using a comparative perspective, the course explores the impact of culture on the framework and understanding of health and illness (e.g., What does it mean to be healthy or sick?). Students will gain an understanding of the ecological, political, and social forces that affect health and will use a cultural perspective to gain insights to the treatment of disease (e.g., How does socioeconomic status, race, gender, and ethnicity affect health? Do immigrants from the Dominican Republic use medicinal plants or foods from their country of origin to treat particular diseases and ailments?).

An important objective of this course will be to critically examine the biomedical paradigm, the biology of disease.
This course considers Franz Boas’ definition of culture as *culture is everything but natural science.* Any interaction or encounter with another individual or group of individuals is in fact a cultural experience which occurs within a cultural context. Broadly, this course aims to demonstrate how culture is conceptualized, considered, and explored in a broad range of issues in the basic, clinical, and community arenas around health and illness and to distinguish the cultural context in each session. The course utilizes class room lecture and small group discussion sessions and a small group project to enable participants to integrate culturally effective approaches into the design and implementation of research across the translational spectrum that improve patient and community health outcomes and reduce health care disparities.

**Course Objectives:**
At the end of this course the student should be able to:

- Demonstrate an understanding of one’s own cultural context and its impact on patients, communities and on health care outcomes
- Analyze evidence of health care disparities from available resources
- Integrate culturally effective approaches into the design and implementation of research across the translational spectrum that improve patient and community health and reduce health care disparities

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**MPH0210 Health and Literacy: Improving Health Communication Efforts**

The issue of health literacy is critically important to the development of effective health communication strategies and outreach. National evaluations of literacy have raised serious concerns about the ability of nearly half the U.S. adult population to access, understand, and apply health communication messages (NAAL 2003), including those messages found in health information, related to health care services, and exchanged during health provider/patient interaction. This course explores the link between literacy and health in the US and how poor health literacy impacts accessing, understanding, and applying health communication messages. Course participants will learn how to take health literacy into account in their work as public health practitioners by understanding the consequences of low health literacy in health outcomes, conducting health literacy loads of spoken and written material, and developing skills to communicate health more effectively across a variety of settings and contexts.

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Updated August 2014
MPH0211  Addiction Medicine

Course Directors: Mary Foley, MS, EdD and Kristin Oliver, MD
Fall Term - Every other year - Next offered 2015  2 credits
Day TBA

This course covers issues in prevention, recognition, treatment, policy, and research in addictions and dependencies. The overall course goals are to provide knowledge in the field of addictions and dependencies, inculcate or reinforce positive attitudes, and identify areas of needed clinical and translational research. Taught by knowledgeable citywide experts in the addiction specialty, the course consists of 12 distinct but interrelated sessions. Topics for the sessions include pharmacologic and behavioral therapies for drug, alcohol, licit and illicit substances, and tobacco addictions, harm reduction, managed care, and addictions in special populations, and public health policy, among others. Students will be required to attend at least one AA or NA meeting. Classes are conducted in seminar format.

MPH0212  Life Cycle of Violence: Implications for Public Health

Course Director: Andrea Rothenberg, MS, LCSW
Spring I Term  2 credits
Mondays

According to Healthy People 2020, “Acts of violence are among the top 15 killers of Americans of all ages.” Once thought of solely as a criminal justice issue, violence prevention and intervention have been embraced as a major public health issue. The television drama, Law and Order: Special Victims Unit (SVU), claims to be “fictional” and states that their show “does not depict any actual person or event.” Yet many episodes strongly resemble real-life situations “ripped from the headlines,” with a few added twists and turns to enhance the plot! Students will view SVU episodes and read peer reviewed articles to guide interactive discussions on the impact of violence over the course of the lifespan on health and wellbeing. Insights from this course will drive more thoughtful and informed practice when working with this important leading health indicator.

MPH0215  What’s Sex Got To Do With It? Teen Pregnancy Prevention & Intervention

Course Director: Andrea Rothenberg, MS, LCSW
Fall Term  2 credits
Thursdays

Pregnancy during the second decade of life is a complex issue requiring multifaceted interventions on a primary, secondary, and tertiary level. A broad range of sociological, cultural and behavioral issues affecting adolescent pregnancy will be explored. Topics will include: predisposing and contributing factors to early pregnancy, protective factors and assets building during development, the strengths perspective, access to reproductive healthcare for women and men, options counseling, and evidenced based pregnancy prevention and intervention programs.

Teen mothers, young fathers, and the parents and children of teen parents as well as teens who have chosen not to have a baby will be guest speakers. Emphasis will be on assisting healthcare providers explore the latest trends in this area as well as their individual attitudes and beliefs about early pregnancy and parenting in order to enhance their ability to work effectively with young women and their families.

Updated August 2014
**Quantitative & Qualitative Research Methods**

**MPH0300  Introduction to Biostatistics**

Course Director: Jim Godbold, PhD  
Fall Term  
Mondays (Lecture) and Wednesdays (Lab)  
3 credits

Students will learn how to conduct descriptive and univariate analyses of data from a well-designed public health or medical study and how to interpret the results of the analyses. Students will learn how to present numerical summary measures derived from large data sets as well as appropriate use of graphical displays. Basic concepts of probability theory will be covered, along with notions of conditional probability, illustrated with measures for assessing efficacy of diagnostic and screening tests. Important probability distributions, such as the Normal and binomial, will be discussed, and students will be able to solve problems involving probabilities calculated from these distributions.

Students will learn how to perform the three basic types of statistical inference: point estimation, hypothesis testing, and confidence intervals. In particular, students will learn how to apply the t-test to compare two means, and how to apply the analysis of variance (ANOVA) to compare three or more means. Non-parametric tests will be illustrated as alternatives to t-tests or ANOVA when the assumption of Normality is in doubt. Students will learn how to use chi square methods to analyze categorical data. Students will also learn how to recognize censored data arising from historical or concurrent prospective studies, how to apply techniques of survival analysis to generate Kaplan-Meier curves, and how to use the log-rank test to test for differences between curves. Simple linear regression and correlation will be discussed as methods for examining the relationship between two continuous variables, along with ways to evaluate the appropriateness of the regression model that has been fit to the data. Logistic regression models will be introduced as a method for the analysis of data from case-control studies, with emphasis on the estimation of an adjusted Odds Ratio.

In the outside project, students will have the opportunity to assess the appropriateness of use of statistical methods in the published literature.

**MPH0305  Introduction to Qualitative Research Methods**

Course Director: TBA  
Next Offered Academic Year 2015-2016  
3 credits

Heart disease, toxicants in food and water, HIV/AIDS, bio-terrorism and avian flu – we live in an ever-changing landscape of risks where information alone does not necessarily lead us to practice good health behaviors. How people perceive, comprehend and prioritize the health information around them powerfully effects what they act on.

This course provides the student with an understanding of how attitudes and perceptions of an individual or group can impact their priorities and actions. Qualitative methodologies bring an enhanced understanding to quantitative research. The qualitative research methods we will cover in this course include: ethnographic/participant observation, in-depth interviews, focus groups, panels and small-scale surveying. Students will be required to design and conduct small field research activities throughout the semester. Methods and findings will be critiqued and refined with class input and participation.
MPH0311       Multivariable Methods

Course Director: John Doucette, PhD
Spring I Term                                             3 credits
Thursdays (Lecture) and Tuesdays (Lab)

This intermediate-level biostatistics course involves in-depth study of statistical methods that examine the relationship among multiple (i.e., more than 2) variables at the same time. The methods covered include linear regression, logistic regression and Cox proportional hazards models. Students will also learn about tests of model fit, regression diagnostics, and representation of categorical independent variables and transformations of dependent variables. Students are shown how to apply these methods using statistical software (SPSS®) and how to interpret the resulting computer output.

Pre-requisites:    MPH0300 Introduction to Biostatistics
                   MPH0400 Introduction to Epidemiology (may be taken concurrently)

MPH0320       Research Methods

Course Director: Mary Foley, MS, EdD
Spring II Term                                             1 credit
Tuesdays

Research Methods encompasses a set of fundamental skills and tools necessary for approaching the process of developing and answering a research question, being a future investigator, or an informed consumer of information in the marketplace. This course provides a solid and practical framework enabling students to successfully embark upon their Master’s Theses. As a prerequisite in the conduct of research, it prepares students to conceptualize, propose, design, and write research papers in general, and the Thesis in particular.

Topics covered include the characteristics of a research study, formulating a research question, experimental research designs, survey construction, data analysis and interpretation, and evaluation of research. Also addressed are strategies for conducting literature searches, research ethics, informed consent, and elements of a research proposal. Students will be required to complete IRB training, HIPPA training, data security training, and outline a research proposal for their Master’s Thesis project by the end of this course.

Full time students are required to take this course in the Spring II Term of their first year in the Master of Public Health Program. The course is only open to matriculated students in the Master of Public Health Program. Pre-requisite course: MPH 0001 Introduction to Public Health.
This course is graded on a Pass/Fail basis. This course will be capped at 30 students. Registration will be based on first come, first serve availability.
Epidemiology

MPH0400  Introduction to Epidemiology

Course Director: Stephanie Factor, MD, MPH
Spring I Term 3 credits
Mondays and Thursdays

This introductory course focuses on the fundamental concepts of epidemiology and its application to the field of public health. The course will provide students with an insight to epidemiologic methods and how they can be used to study health outcomes in human populations. Students will learn the elements of epidemiology, such as causation, study design, measures of effect, and potential biases. Practical and theoretical training will include lectures, small group discussions, and readings.

MPH0410  Epidemiology of Infectious Diseases

Course Directors: Preeti Pathela, Dr.PH
Spring II Term 3 credits
Day TBA

Epidemiology of Infectious Diseases builds upon the concepts presented in Introduction to Epidemiology (P400), stressing the importance of considering the host, environment and disease agent in transmission dynamics. The nineteenth and twentieth centuries witnessed advances in prevention, treatment, and study of infectious diseases and the misconception that infectious diseases were disappearing. The study of infectious diseases leads to the continual development of vaccines, antibiotics, and technology, prompting epidemiologists to develop more advanced methods to monitor disease, investigate patterns of disease transmission, and evaluate innovative prevention modalities. The past thirty years have brought to light both new and re-emerging problems in the epidemiology of infectious diseases, including HIV, SARS, avian influenza, arboviruses, antimicrobial resistance, and the threat of bioterrorism.

Through varied lectures, this course will enable students to gain an understanding of the principles of infectious disease epidemiology, including modes of transmission, quantification of occurrence and risk, and methods for preventing disease at the population level. Students will also participate in various classroom exercises, during which they will investigate outbreaks, create surveillance plans, present evidence of a disease threat, and recommend prevention and control measures.

Pre-requisites:
MPH0300 Introduction to Biostatistics
MPH0400 Introduction to Epidemiology

MPH0411  Journal Club for Health Professionals

Course Director: Emily Senay, MD, MPH
Full Year Course 1 credit
Wednesdays- once per month

This intermediate level Journal Club builds upon the Introductory Journal Club, training students in the presentation of articles relevant to the public health specialties of environmental, occupational and preventive medicine. Each student will be assigned a week to be responsible

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for selecting and presenting an article relevant to their area of specialization. The student may decide to invite a Mount Sinai faculty expert in the particular topic to provide additional commentary on the article. Prior to class, all students are required to read the article and complete a short critique form. All students are expected to participate in class discussions.

Pre-requisites: MPH0300 Introduction to Biostatistics
               MPH0400 Introduction to Epidemiology

Students must be currently licensed health professionals, however if they are not currently licensed they must obtain the approval of the Course Director to enroll.

The Club meets once a month for the academic year. This course is graded on a Pass/Fail basis.

**MPH0412 Epidemiology II**

Course Director: Stephanie Factor, MD, MPH
Fall Term
Tuesdays 3 credits

This course provides instruction in the analysis and interpretation of data from various epidemiological study designs. SAS will be used to demonstrate epidemiological and statistical concepts in data analysis.

Topics:
- Cross-sectional studies
  - Tabular methods:
    - Basics, adjustment for confounding
    - Unconditional logistic regression and linear regression
  - Basics, indicator variables, confounders, hypothesis testing, interactions, choosing the best model
- Case-control studies
  - Unconditional logistic regression
  - Goodness-of-fit and c-statistic
  - Dose-response relation
- Matched case-control studies
  - Conditional logistic regression
  - Ordinal logistic regression
- Cohort Studies
  - Poisson regression
  - Best fit
  - Cox regression
  - Correlated data analysis

Prerequisites: Intro to Epidemiology, Biostatistics, Multivariable Methods or Applied Linear Models I, SAS proficiency

**MPH0415 Case Studies in Epidemiology: Environmental & Occupational Health**

Course Director: Anne Golden, PhD
Spring II Term - Every other year - Next offered 2016 2 credits
Day TBA

This course teaches students the practical steps involved in conducting an epidemiological investigation of a disease occurring in the workplace or due to a wider environmental exposure.

Updated August 2014
Class discussions involve problem-based analysis of published case studies led by faculty with particular expertise in the relevant area of environmental or occupational epidemiology. Statistical analysis of datasets derived from case studies will be required for midterm and final evaluations, therefore basic knowledge of SPSS or SAS is needed.

Pre-requisites:

MPH0300 Introduction to Biostatistics  
MPH0400 Introduction to Epidemiology  
MPH0522 Clinical Occupational & Environmental Medicine or  
MPH0500 Introduction to Occupational & Environmental Medicine

Suggested but not required: MPH0802 Introduction to SAS Systems

**MPH0416 Chronic Disease Epidemiology ***NEW COURSE**

Course Director: Paolo Boffetta, MD, MPH  
Fall Term  
Wednesdays  
3 credits

The course will cover substantive and methodological issues in the epidemiology of chronic diseases, including cancer, cardiovascular diseases, chronic respiratory diseases, neurodegenerative diseases, and aging. Students will be presented with examples of descriptive and analytical epidemiology studies in each of these areas; aspects such as disease registration and its contribution to epidemiology research, estimates of attributable fractions, and preventive strategies will be also addressed. The course will complement the series of methodological courses offered within the epidemiology track, by providing a framework to incorporate research in chronic disease etiology and control.

Prerequisites: MPH0400 Introduction to Epidemiology

**MPH0420 Epidemiology III**

Course Director: Paolo Boffetta, MD, MPH  
Spring I Term  
Tuesdays  
3 credits

This advanced course in epidemiology is built around the overarching themes of the contribution of epidemiology to causal inference, and strategies for selection of study populations, study design and statistical analysis.
Course Director: Denise Gaughan, ScD
Fall and Spring I Terms 2 credits
Mondays

This course is designed for second year MPH students in the Epidemiology track to provide the opportunity, working with their advisor, to design their own research proposal in preparation for the submission of the capstone project. The main activity in class will be the presentations of the research projects. Students will prepare a written submission and a class presentation which will be critiqued by a faculty member (not your advisor). On alternate weeks, post-doctoral fellows will present their experience preparing his or her thesis. This will involve presentations, readings, and discussions.

This course meets in the Fall and Spring I term. Fall registration only. This course is restricted to students in the Epidemiology track.
MPH0500 Introduction to Occupational & Environmental Medicine

Course Director: Stephanie Barnhart, MD
Spring I Term Tuesdays

This course provides an overview of important topics pertinent to environmental and occupational health (OEH). A series of guest lecturers present an overview of environmental areas of air, water, and green housing. A diverse array of occupational diseases are included; such as classic occupational exposure to heavy metals, pesticides, and solvents. The basic principles of recognition and evaluation of chemical, physical and biological hazards, exposure assessment, toxicological profiles, and control hierarchies are covered. Applicable principles in industrial hygiene and ergonomics as well as fundamentals of occupational and environmental regulation and legislature will be discussed.

The course provides basic underpinnings of the nature of theory and practice in OEM, and thus provides a structural framework for thinking about the field and identifying linkages with other disciplines and specialties.

MPH0506 Topics on Safety and Ergonomics

Course Directors: TBA
Spring I Term - Every other year - Next offered 2015 Day TBA

The purpose of the class is to give public health students insight into the everyday workings of on-the-job safety programs. It is designed for doctors, health administrators, and other health and safety professionals who will have a role in implementing safety and ergonomic programs in industry, business or union settings. Each student will be paired up with a health and safety professional in a union or company and will participate in two field visits to observe their safety activities. There will be weekly reading assignments and a short final presentation.

The topics covered will include: Safety History and Scope of Current Injuries and Fatalities; Hazard Identification and Interpreting Injury and Illness Data; Incident/Accident Investigations and Root Cause Analysis; Elements of an Ergonomics Program, including hazard identification and control of occupational mechanical and psychosocial exposures, and organizational determinants, and medical surveillance; Role of Labor and Management in Safety Programs; Making a Case for Safety; cost analysis and legal responsibilities; Examples of Safety Programs in certain trades. The class format will be informal and participatory, relying heavily on class discussion of the readings.
MPH0515  Toxicology

Course Director: Robert Wright, MD, MPH
Spring II Term  3 credits
Day TBA

This course provides an introduction to the major concepts in toxicology with particular emphasis on specific chemical agents and classes of agents including pesticides, metals and solvents and vapors. The difference between a toxin and a toxicant is discussed. Toxicokinetics and toxicodynamics are present in a lecture. Students will learn about the history of toxicology and the mechanisms of action of certain classes of compounds. Specific target organ toxicities are covered including hepatic, renal, dermal, cardiovascular, pulmonary, neuronal, developmental, reproductive, and endocrine systems. When available, resource information regarding databases is presented. The students are also introduced to the field of genomics. Toxicology disasters from the history of time to the present are discussed in class. In addition, case vignettes consisting of specific toxicological agents and their effects in the form of real-life case studies with physical findings, lab, data, and the actual diagnoses with a relevant discussion of the agent and the management of the toxic effect. The text used for the class is Casarett & Doull’s Essentials of Toxicology (Klaassen and Watkins, McGraw Hill Lange 2010 Second edition). The optional text for the case vignettes is Toxicology Pearls (Osterhoudt et al. Elsevier Mosby, 2004).

MPH0522  Clinical Occupational & Environmental Medicine

Course Director: Stephanie Barnhart, MD
Summer Term - Two weeks  3 credits

This course serves as an introduction to the practice of clinical occupational and environmental medicine (OEM). Classes will generally be organized using an organ systems-based approach, with a focus on specific exposures and health outcomes. There will be the opportunity for multi-disciplinary case-based discussions involving both students and faculty that will allow for integration of concepts.

Although the focus of the course is clinical OEM, an overview of salient topics from the allied fields of industrial hygiene and ergonomics will be presented. Regulatory and other approaches to reduce workplace exposures will be deliberated. Important public health and policy implications will be discussed.

The course will serve to orient students to the basics of the New York State Worker’s Compensation system and the role of occupational health services in hospital and private-practice settings.

The course is limited to licensed physicians except with the permission of the Course Director and Specialty Track Advisor of the Occupational & Environmental Medicine specialty track.
MPH0523  Advanced Occupational & Environmental Pulmonary Disease

Course Director: Rafael de la Hoz, MD
Fall Term - Every other year - Next offered Fall 2014  2 credits
Thursdays

Pulmonary diseases due to occupational and environmental exposures have historically been at the center of the practice and science of occupational medicine. This course will review pulmonary diseases caused by occupational and environmental exposures from the perspectives of clinical diagnosis, toxicology, treatment, and prevention. Regulatory and other approaches to reduce exposure will be discussed. Public health and policy implications will be considered as well.

This course is limited to currently licensed healthcare professionals.

MPH0525  Pediatric Environmental Health

Course Director: Joel Forman, MD & Perry Sheffield, MD
Spring II Term  2 credits
Day TBA

This course introduces the learner to the potential health effects in children from exposures to chemical and physical agents from indoor and outdoor environments, such as lead and mercury, a wide variety of organic chemicals such as solvents, pesticides and air pollutants, and molds. It covers the basic principles of exposure assessment; skills in pediatric environmental exposure history taking; and the adverse effects of environmental exposures on child neurodevelopment. Students learn how to design risk communication strategies for environmental exposures targeted to a specific group of children, access pediatric health reference material, apply state of the art clinical evidence in the formulation of public health policy, and advocate for child health. The course format is participatory, and includes journal article critiques and reviews, lectures and clinical case scenarios.
Outcomes Research

**MPH0621  Seminar in Applied Clinical Epidemiology & Health Services**

Course Director: Jeffrey Weiss, PhD and Jenny J Lin, MD  
Full Year Course  
1 credit  
Fridays every other week

This seminar focuses on current methodological, analytical and logistical issues in clinical epidemiology and health services research. The course helps participants develop, refine, implement, and evaluate a quantitative clinical epidemiology or health services research study. Attendees also learn to critically evaluate the methodological strengths and weaknesses of key clinical research designs including: retrospective and prospective cohort studies, patient and physician survey research, secondary dataset analysis, and interventional studies. All seminar members must present a research proposal during the one year period, as well as participate actively in critique and feedback to other presenters. The course is primarily intended for clinician trainees in the MPH outcomes research track or Masters of Science in Clinical Research (MSCR) program but welcomes all students interested in outcomes research analysis.

Pre-requisites: MPH0300 Introduction to Biostatistics  
MPH0400 Introduction to Epidemiology

This class meets on alternate weeks.

**MPH0623  Applied Analysis of Epidemiologic and Outcomes Research Data**

Course Director: Juan Wisnivesky, MD  
Spring II Term  
3 credits  
Day TBA

This course is focused on learning the application of statistical methods for the analysis of epidemiologic and patient-oriented observational data. The emphasis will be on hands-on experience, involving case studies with real data and using the statistical software SPSS. The focus will be on choosing and on implementing the appropriate statistical methods to analyze and interpret different types of data. Attention will also be paid to the theory behind these tests and on testing the validity of the assumptions. The course will cover data management, exploratory data analysis, model formulation, goodness of fit testing, and other standard procedures, including linear regression, analysis of variance, logistic regression, and survival analysis. The grade will be based on the homework, midterm, and a final exam. This course will be particularly well suited to students who are actively involved in an epidemiology, outcomes, health services, or survey research project that is entering the data analysis phase.

Pre-requisites: MPH0300 Introduction to Biostatistics  
MPH0311 Multivariable Methods
Course Directors: Juan Wisnivesky, MD and Henry Sacks, MD, PhD
Spring I Term 3 credits
Tuesdays (Lecture) and Wednesdays (Lab)

The goals of this course are to provide students with a theoretical understanding and hands on experience in advanced epidemiology and outcomes research methods. The course will provide a review of each method within an interactive computing environment. Assignments requiring computer analysis of clinical data will be provide with each topics. Areas to be covered include decision analysis, cost-effectiveness analysis, propensity score analysis, instrumental variable analysis, clinical prediction rules, and analysis of repeated measurements.

Pre-requisites: MPH0300 Introduction to Biostatistics
               MPH0311 Multivariable Methods
Global Health

MPH0700       Introduction to Global Health

Course Director: Nils Hennig, MD, PhD, MPH
Fall Term
Tuesdays

This course provides an introduction to the major concepts and principles of global health with particular emphasis on neglected populations. The course provides students with an understanding of the principles of health within the context of development, human rights, and globalization, and provides an appreciation of the varied challenges and controversies. Students will learn about the establishment of global health priorities, developing an appreciation for issues related to underserved populations. Students will learn about the major players in the global arena and challenges of financing. A multidisciplinary approach is used to discuss the major determinants of health and disease with particular emphasis on the relationship between health and socioeconomic development. At the end of the course, students will be introduced to the most important challenges and variables of global health and their interactions. They will be prepared to advance to more specific and in-depth courses of the Global Health Track. A high level of classroom participation with active contributions to classroom discussion and debate will be expected.

MPH0703       Global Mental Health

Course Director: Craig Katz, MD and Jeffrey Kleinberg, PhD
Fall Term
Wednesdays

“There is no health without mental health.” Yet, while 450 million people struggle with mental disorders, sufferers in resource-limited areas receive little or no treatment. This course will describe how to strategically approach global mental health planning and implementation for scaling up mental health services within a public health framework. It will rely on a model known as the Wheel of Global Mental Health, which encompasses seven interdependent elements that together encompass the goals, resources, and dynamics integral to scaling up.

MPH0705       The Health of Underserved Populations in the United States

Course Director: Gina Jae, MD, MPH and Elisabeth Brodbeck, MPH, MA
Spring I Term
Day TBA

Global health disparities bring into stark relief the inequities in health status and healthcare access that also exist within the developed world. How we frame the underlying causes of disparate health outcomes across populations also determines how we conceive of their solutions. This class will engage with how underserved populations are defined; critically analyze the ways that race, class, gender, and other factors become framed in relation to public health problems; and evaluate how individual and systems-based interventions and policies are impacting disparities in health. By examining the ways that social determinants of health are being conceptualized by epidemiologic and social science tools, such as fundamental cause theory, structural violence, intersectionality, capabilities frameworks, etc., students will explore ways to operationalize these understandings into their public health research and program intervention strategies.

Updated August 2014
International humanitarian emergencies have been increasing over the past three-four decades largely due to war and political conflicts. Some of these emergencies have become chronic in nature contributing to significant increase of mortality and morbidity worldwide over prolonged period of time and affecting disproportionately developing and under-developed nations and poor. Many of these humanitarian situations result in massive displacement of population. Refugees confront problems beyond geographic dislocation from their homes; they face socio-cultural, economic, and health consequences on an individual level as well as on a broader population level. Displacement may result from natural disasters or man-made problems such as civil unrest and war. In many recent circumstances, population dislocation has resulted from a combination of both.

This course provides insight into the root causes of humanitarian emergencies with historical case examples, and will focus on the public health aspect of humanitarian emergencies and the impact of displacement on populations. The course will explore: the major causes of diseases and death; rates of morbidity and mortality and how they are measured; public health surveillance during the emergency and immediate post-emergency phases; how to identify the most vulnerable groups; ensuring an adequate and safe food supply, proper sanitation, and acceptable shelter; understanding the public health challenges such as epidemics; and the broad psycho-social impact of being labeled a refugee.

A growing number of environmental problems are negatively impacting human health, including climate change, stratospheric ozone depletion, loss of biodiversity, changes in hydrological systems and the supplies of freshwater, accumulation of environmental toxins, deforestation, and the degradation of agricultural land. Recognizing the link between health and the ecosystem requires an understanding of the complex relationship between humans and the biosphere's life-supporting systems.

This course will focus on how global environmental change is affecting human health. The topics included in this course build upon available evidence from different parts of the world, including the cause and impact of natural and man made disasters, land use changes, poor housing, export of hazardous waste, environmental refugees, food and water insecurity, as well as overarching themes such as environmental injustice. We will discuss the public health policy implications of an out–of–balance global ecosystem, and the major challenges it represents to physicians, scientists, institutions, governments and concerned communities. We will also discuss local and global solutions to various problems described above.
MPH0713 Health and Human Rights: Human Rights Abuses, Torture & Its Consequences

Course Director: Schuyler W. Henderson, MD, MPH
Fall Term 2 credits
Wednesdays

Human rights abuses are pervasive and have both obvious and subtle health consequences. They also need to be understood from different angles: how they affect individual health (including psychological health) as well as population and community health; how human rights abuses involve ethical, scientific, political, social, and cultural considerations; and how the field of public health can address human rights abuses in multiple ways, including advocacy and testimony, influencing health-related practices, education, documentation and accumulation of data.

This course is designed to raise students’ awareness of human rights abuses, including torture; to describe how human rights abuses adversely impact health; to introduce the epidemiology of human rights abuses; and to consider how disciplines within Public Health can address (and sometimes participate in) human rights abuses. The course covers the ethical and political foundations of Human Rights, how we know human rights abuses are occurring (the epidemiology of human rights abuses; testimony; the use of affidavits), and specific health ramifications of torture, forced migration and disparities. In addition, public health implications of human rights abuses will be discussed around special topics: children, gender, human rights law, and the role of health care providers in human rights abuses (from overt examples of participation in torture and genocide to more complex realms where public health imperatives may conflict with human rights, as with some forms of public health surveillance).

MPH0717 Maternal & Child Health in Developing Countries

Course Directors: Gina Jae, MD, MPH and Kate Ramsey, MPH
Spring II Term 3 credits
Day TBA

This course introduces the student to the challenges that perpetuate high rates of maternal and childhood morbidity and mortality in low and middle-income countries. This includes not only discussion of the health issues that drive this mortality, such as HIV/AIDS, malaria, diarrheal disease, obstetric complications and malnutrition, but also the respective health system and structural barriers that limit access to quality health services and contribute to the vulnerability of women and children. Approaches to improve maternal and child survival, including facility and community-based interventions, will be examined as well. The course is case-based and students will be involved in intensive small group problem solving exercises through which they will learn the necessary skills to address problems facing mothers and children in low and middle-income countries. The course emphasizes participatory learning, in-class discussion, self-directed research, and small group exercises. Introduction to Global health is a prerequisite for attending this course and registration is limited to 20 participants on a first come (register) first served basis.
MPH0720       Preparation for Global Health Field Work

Course Directors: Natasha Anandaraja, MD, MPH, Sigrid Hahn, MD, MPH, Jonathan Ripp, MD, MPH
Spring I Term       2 credits
Mondays

In this course students will learn essential skills for working in global public health or research projects in underserved and under-resourced settings. The course is designed to prepare participants with a career interest in global health for practical fieldwork. The course is case-based, emphasizes student participation, self-directed research, and development of relevant practical knowledge and skills. Topics include community-based needs assessment, project planning, survey design, focus group design, sampling for international research, cultural competency, and safety and security during international assignments. All students who are intending to carry out practical work or research in an under-served setting as part of their MD or MPH are expected to complete this course before going into the field. Students must be approved by course directors to attend this course and preference will be given to those who are planning a global health field experience within the following 12 months. Please email Renee Bischoff for approval and include information about your planned GH experience.

MPH0795       Global Health Conference

Course Directors: TBA
Late Spring I Term or early Spring II Term       1 credit
Friday

This 1 day conference focuses on a timely topic in global health, such as the effect of climate change on human health, the health consequences of the war in Iraq, indigenous people’s health, and recent trends in international developmental and aid. Through lectures, panel discussions, small group sessions, readings and a writing assignment, students will have the opportunity to learn about an acute global health issue in depth. They will meet and interact with leaders in the field, and are given the opportunity to network. The students will learn focusing on positive solutions to a complex global health problem.

To receive academic credit for this conference, students are required to attend the conference and complete required assignments.

Previous Topics:

2014: Realizing Rights for Women and Girls
2013: Healthcare on the Margin
2012: Medical Innovations for the Underserved
2011: Toxins: A Global Threat
2010: Indigenous Health
2009: International Development and Aid: Controversies and Successes
2008: Environmental Crisis and Its Impact on Human Health
2007: Health Consequences of the War in Iraq
2006: Evidence-based Solutions to Global Health Problems

Updated August 2014
Biostatistics

**MPH0800  Introduction to Advanced Biostatistics**

Course Director: Emma K. T. Benn, MPH, DrPH
Fall term
Mondays (Lecture) and Wednesdays (Recitation)  3 credits

This course provides a thorough introduction to the fundamentals of biostatistics--numerical and graphical summaries of data, hypothesis testing, and estimation. The emphasis is on concepts and problem solving and not on the underlying mathematical theory. Specific topics include general principles of study design, sampling distributions, testing equality of population means (e.g., t-tests), simple categorical data analysis (e.g. chi-square tests), analysis of variance, correlation, simple linear regression, and an introduction to multiple linear regression. This course is intended for students in the biostatistics or epidemiology tracks of the MPH Program, the PhD students in the Clinical Research Program, and highly recommended for other PhD students in programs with rigorous, quantitative expectations.

Prerequisites: Algebra

**MPH0801  Introduction to Probability**

Course Director: Michael Parides, PhD
Fall term  3 credits
Thursdays (Lecture) and Tuesdays (Lab)

This course provides an introduction to probability models emphasizing applications in medicine and biology. In addition to presenting basic probability theory and models, a variety of topics important in statistics will be covered, including: random variables; discrete and continuous probability distributions; conditional probability, joint probability, expectation and variance; independence; sampling distributions, combinatorics, and permutations.

**MPH0802  Statistical Computing with SAS**

Course Director: John Doucette, PhD
Spring II term  2 credits
Mondays

This course is focused on an understanding of the how to utilize SAS systems for data management and manipulation in order to prepare for statistical modeling. The course is designed for MPH students that will be using statistical software in their future work. Students will be given hands on training by using their own datasets as well as data provided by the instructor. The lectures will take place in the Levy Library where SAS is available to the students during course instruction.

Pre-requisite: Introduction to Biostatistics or Introduction to Advanced Biostatistics
MPH0803  Introduction to SAS Programming

Course Director: John Doucette, PhD
Fall term  2 credits
Wednesdays

This course introduces students to the SAS programming language, particularly as it pertains to data management tasks needed to work with SAS datasets and prepare them for statistical analyses. Procedures for basic statistical analyses and simple graphs are also covered. The course is designed for MPH students in the Epidemiology track and the Biostatistics track, who will be using SAS software in their future work. Students will be given hands-on training by using their own datasets as well as data provided by the instructor. The lectures will take place in the Levy Library where SAS is available to the students during course instruction. This course is limited to students in the biostatistics or epidemiology tracks.

Co-requisite: Introduction to Advanced Biostatistics

MPH0812  Applied Linear Models I

Course Director: Michael Parides, PhD
Spring I term  3 credits
Thursdays (Lecture) and Tuesdays (Lab)

Regression analysis is a widely used set of methods for exploring the relationships between response variables and one or more explanatory variables. This course provides an introduction to regression methods for a single continuous response variable. Both linear and curvilinear regression models are considered. A brief introduction to regression of a single binary response will also be considered. The emphasis is on concepts and application rather than on underlying theory. As mathematical results are presented without proof, students are not required to be proficient in calculus or matrix algebra.

Pre-requisites: Introduction to Biostatistics or Introduction to Advanced Biostatistics

MPH0820  Statistical Inference

Course Director: John Spivack, PhD
Spring I term  3 credits
Thursdays

Introduction to the theory of statistics focusing on the basic concepts and approaches to estimation and hypothesis. Specific topics include a study of common probability distributions, definitions of moments, the law of large numbers and central limit theorem, maximum likelihood, likelihood ratio tests, and decision theory. Knowledge of calculus (integration and differentiation) is required; however, an introduction and review will be provided.

Pre-requisites: Introduction to Probability or permission of the Course Director.
MPH0821  Analysis of Longitudinal Data

Course Director: Emilia Bagiella, PhD
Spring II term
Tuesdays

The aim of this course is to provide a systematic training in both the theoretical foundations and the model building strategies of linear regression models for MS/MPH and PhD students who have already had some data analysis experience. The course presents modern approaches to the analysis of longitudinal data. Topics include linear mixed effects models, generalized linear models for correlated data (including generalized estimating equations), computational issues and methods for fitting models, and dropout or other missing data. Students should take this class at the end of tier second year.

Pre-requisites: Introduction to Advanced Biostatistics
   Introduction to Probability
   Applied Linear Models
   Statistical Inference

MPH0822  Applied Linear Models II

Course Director: Michael Parides, PhD
Spring I term
Thursdays

This course provides a comprehensive overview of regression methods for analysis of categorical (binary and count) data and survival data, with applications to epidemiological and clinical studies. Topics discussed include logistic regression analysis, log linear model for contingency tables, Poisson regression, Kaplan-Meier survival curves, and Cox (proportional hazard) regression analysis. The emphasis is on concepts and application rather than on underlying theory. As mathematical results are presented without proof, students are not required to be proficient in calculus or matrix algebra.

MPH0823  Survival Analysis

Course Director: Sylvan Wallenstein, PhD
Fall term
Mondays

This course describes the analysis of time-to-event data. Several concepts of censoring are introduced, as are functions used to describe survival distributions. Cox regression is studied including the assumptions required, examining the validity of these assumptions, and dealing with time dependent covariates. Interval censored data are explored, as well as the analysis of multiple failures. Analyzing data sets will be required. Emphasis is on concepts and applications, but some appreciation of very basic statistical concepts is required to appreciate the topics to be covered.

Prerequisites: MPH0801:Introduction to Probability
   MPH 0802 or MPH0803: SAS, or evidence of other non-menu driven statistical software (e.g. R)
   MPH 0822: Applied Linear Models II
Practicum, Thesis, Independent Study & Elective

MPH0090    Practicum

Any Term                      0 credits

The Practicum experience provides the student with an exciting opportunity to implement and practice lessons learned in the classroom, offering the possibility to integrate knowledge and expose the student to new and exciting prospects for future professional development. (Please refer to the Practicum Handbook)

MPH0098    Master’s Thesis Research    (for MD-MPH students only)

Dual MD-MPH Program students may register for this as one of their clinical electives in either the third or fourth year of medical school. This is a four-week elective that will enable the student to dedicate time to completing his/her Master’s Thesis.

Prior to beginning this rotation, a student must complete the MPH Program’s Elective Approval Form and register for the elective. The Thesis Advisor will be the instructor for this elective.

MPH0097    Capstone Project

The MPH capstone project is a requirement for those students in the Epidemiology, Biostatistics, and Health Care Management tracks. Students in these tracks complete a Capstone Project in place of the Master’s Thesis.

Students register for their Capstone on or before the Spring II Term of their second year while preparing to submit their Capstone project.

MPH0099    Master’s Thesis

3 credits

Students register for their Master’s Thesis on or before the Spring Term of their second year while preparing to submit their Thesis.

Please refer to the Guide to Completing the Master's Thesis as a resource for the steps that need to be taken in fulfilling the Master’s Thesis requirement.

MPH0095    Independent Study

An Independent Study is an elective option, providing the student with an opportunity to delve more thoroughly into an area of public health of specific interest to him/her.

Please note that an Independent Study Proposal should be submitted at least six weeks prior to the anticipated start of the proposed project/course of study. This is to ensure that the goals meet the overall objectives of the Master of Public Health Program before a student commits any time and energy. Approval of a form submitted less than six weeks of the anticipated start of the project/course of study will not be guaranteed and the student is responsible for assuming any risk that this may entail. Approval, when granted, is conditional upon the student completing all of the outlined requirements. The student must submit a Postscript Report and request that the faculty sponsoring the Independent Study submit an Evaluation Form.
Three credits are the maximum number of credits that may be awarded to any Independent Study. Please note that while the total hours committed to the pursuit of the Independent Study may be sufficient for more than three credits or more than one elective, students will not receive any more than three credits for one project/course of study. Each student may complete no more than two independent study projects.

An Independent Study must be a unique experience. Material covered during an independent study project should be highly targeted and not simply a review of the regularly offered coursework. It is important to note that generally speaking independent study projects should not be attempts to take MPH courses that are offered routinely during the academic year at times that are more convenient for the student. Students should not expect independent study projects to exempt them from core course requirements without approval by the Track Academic Advisor and the Program Director. Final credits are awarded at the end of the project by approval of the Program Director. Generally speaking 1 (one) credit represents approximately 45 hours of work.

Steps towards formalizing an Independent Study:
1. Meet with your Academic Advisor to discuss and plan the Independent Study.
2. Complete the Independent Study Proposal Form.
3. Submit the Independent Study Form to Program Administration for approval.
4. Complete the project/course of study once approved.
6. Request that your Faculty Sponsor complete the Independent Study Evaluation Form and submit it to the Program Coordinator.

**MPH0096 Elective Offered in another Program or Institution**

A student may decide to enroll in a course offered by another Program here at Mount Sinai or elsewhere. If a student wishes to take a course for elective credit from Mount Sinai School of Medicine or Mount Sinai Graduate School of Biomedical Sciences, please consult the appropriate School’s Course Catalogue.

Please submit a course description and a syllabus from the Institution offering the elective course, together with a completed Elective Approval Form, to the Program Director of the Master of Public Health Program.

**Approval must be given from the Master of Public Health Program Director prior to enrolling in a course in another Program or Institution.** The student’s request should be submitted on the Elective Approval Form and he/she must receive approval before the course begins.

An official transcript must be sent from the sponsoring institution upon the completion of the elective in order for it to appear on a student’s MPH transcript. Official transcripts must be sent directly from the institution to the Program’s Administrative Assistant.
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**Offered through the Clinical Research Education Program:**

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