UM SPH Academic Courses

**BIOSTAT449**
Topics In Biostatistics  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Kalbfleisch, Jack  
**Not offered 2005-2006**  
Prerequisites: Statistics 401 or permission of instructor  
This course will make use of case studies to discuss problems and applications of biostatistics. Topics will include cohort and case control studies, survival analysis with applications in clinical trials, evaluation of diagnostic tests, and statistical genetics. The course will conclude with a survey of areas of current biostatistical research.

**BIOSTAT503**
Introduction to Biostatistics  
Fall term(s)  
4 Credit Hour(s)  
Instructor(s): Boehnke, Michael L and Nichols, Thomas  
Prerequisites: Elementary algebra  
Fundamental statistical concepts related to the practice of public health: descriptive statistics; probability; sampling; statistical distributions; estimation; hypothesis testing; chi-square tests; simple and multiple linear regression; one-way ANOVA. Use of computer in statistical analysis.

**BIOSTAT510**
Statistical Computer Program Packages  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Welch, Kathy  
Prerequisites: Biostat 503 or 553, Biostat 523 (co-requisite), or permission of instructor  
Students learn use of several widely used statistical computer program packages such as BMDP, SAS and SPSS. Emphasis placed on relative merits of these packages with respect to types of statistical analyses they perform and their methods of data management.

**BIOSTAT523**
Biostatistical Analysis for Health-Related Studies  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Kim, Myra  
Prerequisites: Biostat 503 and Biostat 510 (co-requisite)  
A second course in applied biostatistical methods and data analysis. Concepts of data analysis and experimental design for health-related studies. Emphasis on categorical data analysis, multiple regression, analysis of variance and covariance.

**BIOSTAT553**
Applied Biostatistics
BIOSTAT560
Statistical Methods in Epidemiology
Fall term(s)
4 Credit Hour(s)
Instructor(s): Ghosh, Debashis
Prerequisites: Biostat 523, EPID 503 or EPID 601
Statistical methods commonly used in environmental epidemiology. Emphasis on choosing appropriate statistical methods and subsequent interpretation. Topics include probability, measures of association and risk, sample size calculations, SMR and PMR analysis, logical regression and survival analysis.

BIOSTAT578
Practical Projects
Fall Winter Spring Spring-Summer Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: NONE
Practical projects in consultation and statistical analysis of data in research studies with health investigators. Course requirements include an approved practical work experience related to Biostatistics in consultation with a faculty advisor. May be elected more than once. Enrollment limited to Biostatistics majors with at least two full terms of prior registration.

BIOSTAT600
Introduction to Biostatistics
Fall term(s)
1 Credit Hour(s)
Instructor(s): Nichols, Thomas and Welch, Kathy
Prerequisites: Admission to a degree program in Biostatistics
The purpose of this course is to review basic applied statistical concepts and tools and to introduce the SPH computer network and statistical software.

BIOSTAT601
Probability and Distribution Theory
Fall term(s)
4 Credit Hour(s)
Instructor(s): Nan, Bin
Prerequisites: Three terms of calculus
Fundamental probability and distribution theory needed for statistical inference. Probability, discrete and continuous distributions, expectation, generating functions, limit theorems, transformations, sampling theory.

**BIOSTAT602**  
Biostatistical Inference  
Winter term(s)  
4 Credit Hour(s)  
Instructor(s): Murray, Susan  
Prerequisites: Biostat 601  
Fundamental theory that is the basis of inferential statistical procedures. Point and interval estimation, sufficient statistics, hypothesis testing, maximum likelihood estimates, confidence intervals, criteria for estimators, methods of constructing test and estimation procedures.

**BIOSTAT605**  
Intro to SAS Statistical Programming  
Fall term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: One course in introductory statistics; Co-requisite Biostat 601 or equivalent or Perm. Instr  
This course is designed for individuals with a strong quantitative background that are interested in the scientific, policy, design and management aspects of clinical trials. Topics include types of clinical research, bias and random error, study design ethics, treatment allocation, randomization and stratification, quality control, power and sample size, group sequential monitoring, cross-over designs and meta-analysis.

**BIOSTAT610**  
Readings in Biostatistics  
Fall Winter term(s)  
1-4 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: One of Biostat 503, Biostat 524, Biostat 553 or Biostat 601/Biostat 602  
Independent study in a special topic under the guidance of a faculty member. May be elected more than once. Enrollment is limited to biostatistics majors.

**BIOSTAT615**  
Statistical Computing  
Fall Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Abecasis, Goncalo  
Not offered 2005-2006  
Prerequisites: Biostat 601 or Perm. Instr.
A survey of key algorithms for statistical computing and its applications in Biostatistics. The course will cover fundamental computational techniques for dynamic programming, sorting, and searching, as well as statistical methods for random number generation, numerical integration, function optimization, Markov-Chain Monte Carlo, and the E-M algorithm. Enables students to understand numerical results produced by a computer and to implement their own statistical methods.

**BIOSTAT617**
Theory and Methods of Sample Design (Soc 717 and Stat 580 and SurvMeth 617)
Fall term(s)
3 Credit Hour(s)
Instructor(s): Lepkowski, James M
Prerequisites: Three or more courses in statistics, and preferably a course in methods of survey sampling
Theory underlying sample designs and estimation procedures commonly used in survey practice.

**BIOSTAT619**
Clinical Trials
Fall term(s)
2 Credit Hour(s)
Instructor(s): Murray, Susan
Not offered 2005-2006
Prerequisites: Biostatistics 601 or equivalent or Perm. Instr. One course Introductory Statistics
This course is designed for individuals with a strong quantitative background that are interested in the scientific, policy, design and management aspects of clinical trials. Topics include types of clinical research, bias and random error, study design, ethics, treatment allocation, randomization and stratification quality control, power and sample size, group sequential monitoring, crossover designs and meta-analysis.

**BIOSTAT630**
Statistical Methods in Biological Assay
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Biostat 650 and Co-requisite Biostat 651 or Perm. Instr.
Logic of biological assay; dosage response curves; quantitative and quantal responses; parallel line and slope-ratio assays; simplified estimators; sequential assays; problem of design.

**BIOSTAT642**
Introduction to Functional MRI
Fall term(s)
3 Credit Hour(s)
Instructor(s): Nichols, Thomas
This course presents the basic skills to design and analyze functional magnetic resonance imaging (fMRI) experiments. We start by reviewing the basic Matlab and Unix skills necessary to manipulate image data. Next we introduce the principles of MRI and the nature of the Blood Oxygenation Level Dependent (BOLD) effect, including artifacts that corrupt the BOLD signal. We cover blocked and event-related designs, and how to optimize statistical power of design. We cover subject safety.

**BIOSTAT645**

Time Series Analysis with Biomedical Applications

Fall term(s)

3 Credit Hour(s)

Instructor(s): Staff

Not offered 2005-2006

Prerequisites: Biostat 602, Biostat 650 or Perm. Instr

Introduction to statistical time series analysis with an emphasis on frequency domain (spectral) methods and their applications to biomedical problems. Topics include autocorrelation, stationarity, autoregressive and moving average processes, power spectra, periodograms, spectral estimation, linear filters, complex demodulation, autoregressive integrated moving average (ARIMA) models, cross-correlation, cross-spectra, coherence, time and frequency domain linear regression. The methods will be illustrated in applications to various areas of public health and medical research such as environmental health, electrophysiology, and endocrinology.

**BIOSTAT646**

Data Analysis in Molecular Biology

Winter term(s)

3 Credit Hour(s)

Instructor(s): Shedden, Kerby

Prerequisites: Graduate Standing and Statistics 400, Biostatistics 523, or Biostatistics 553 or permission of instructor

The course will cover statistical methods used to analyze data in experimental molecular biology. The course will primarily cover topics relating to gene expression data analysis, but other types of data such as genome sequence data that is sometimes analyzed in concert with expression data will also be covered.

**BIOSTAT650**

Applied Statistics I: Linear Regression

Fall term(s)

4 Credit Hour(s)

Instructor(s): Staff

Prerequisites: BIOSTAT601

Graphical methods, simple and multiple linear regression; simple, partial and multiple correlation; estimation; hypothesis testing, model building and diagnosis; introduction to nonparametric regression; introduction to smoothing methods (e.g., lowess) The course will include applications to real data.

**BIOSTAT651**

Applied Statistics II: Extensions for Linear Regression

Winter term(s)

3 Credit Hour(s)

Instructor(s): Elliot, Michael
Prerequisites: BIOSTAT601 and BIOSTAT650

Introduction to maximum likelihood estimation; exponential family; proportion, count and rate data; generalized linear models; link function; logistic and Poisson regression; estimation; inference; deviance; diagnosis. The course will include application to real data.

BIOSTAT652
Design of Experiments
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Biostat 651

Planning of experiments, use of contrasts in analysis of complete and incomplete block designs. A unified approach to analysis of designs through use of eigen-values and eigenvectors of the association matrix. A-D-E optimality criteria factorial exponents; efficiency of a design, confounding, fractional replication, response-surface designs, rotability criterion, mixture designs, analysis of two-way designs, analysis when blocks are random, applications in biological and biomedical problems.

BIOSTAT653
Applied Statistics III: ANOVA and Linear Mixed Models
Winter term(s)
3 Credit Hour(s)
Instructor(s): Banerjee, Mousumi
Prerequisites: BIOSTAT650 and concurrent enrollment in BIOSTAT651

One-way layout, two-way and higher-way layouts; fixed effects and random effects; multiple comparisons; matching and blocking; balanced and unbalanced designs; weighted least squares; repeated measures; longitudinal and clustered data; linear mixed models; variance components; BLUP; REML. The course will include applications to real data.

BIOSTAT664
Special Topics in Biostatics
Fall Winter Spring-Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Permission of instructor

Master's level seminar designed to provide an extensive review of a number of substantive and methods and skill areas in biostatistics. Readings, discussion, and assignments are organized around issues of mutual interest to faculty and students. Reviews and reports on topics required in the areas selected. May be elected more than once.

BIOSTAT666
Statistical Models and Numerical Methods in Human Genetics
Winter term(s)
3 Credit Hour(s)
Instructor(s): Abecasis, Goncalo
Prerequisites: Biostat 602 or Perm. Instr.

Introduction to current statistical methods used in human genetics. Topics will include sampling designs in human genetics, gene frequency estimation, the coalescent method for simulation of DNA sequences, linkage analysis, tests of association, detection of errors in genetic data, and the multi-factorial model. The course will include a simple overview of genetic data and terminology and will proceed with a review of numerical techniques frequently employed in human genetics.

**BIOSTAT675**
Survival Time Analysis

Fall term(s)
3 Credit Hour(s)
Instructor(s): Schaubel, Douglas
Prerequisites: Biostat 602 and Biostat 650

Concepts and methods for analyzing survival time data obtained from following individuals until occurrence of an event or their loss to follow-up. Survival time models, clinical life tables, survival distributions, mathematical and graphical methods for evaluating goodness of fit, comparison of treatment groups, regression models, proportional hazards models, censoring mechanisms.

**BIOSTAT680**
Applications of Stochastic Processes I

Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Biostat 601 and Math 450 or equiv

Conditional distributions, probability generating functions, convolutions, discrete and continuous parameter, Markov chains, medical and health related applications.

**BIOSTAT682**
Applied Bayesian Inference

Winter term(s)
3 Credit Hour(s)
Instructor(s): Qin, Zhaohui
Prerequisites: Biostat 602, Biostat 650 and Biostat 651


**BIOSTAT685**
Elements of Nonparametric Statistics

Winter term(s)
3 Credit Hour(s)
Instructor(s): Braun, Thomas
Prerequisites: Biostat 602 or STAT 511, and Biostat 650 or Perm. Instr
First half covers theory and applications of rank and randomization tests: sampling and randomization models, randomization t-test, Wilcoxon rank sum and signed rank tests, Kruskal-Wallis test, asymptotic result under randomization, relative efficiency; second half covers theory and applications of nonparametric regression: smoothing methods, including kernel estimators, local linear regression, smoothing splines, and regression splines, methods for choosing the smoothing parameter, including unbiased risk estimation and cross-validation, introduction to additive models.

**BIOSTAT690**
Health Applications of Multivariate Analysis
Winter term(s)
3 Credit Hour(s)
Instructor(s): Brown, Morton B

**Not offered 2005-2006**
Prerequisites: Biostat 650 and Biostat 651 and Math 417 or Perm. Instr.
Techniques of multivariate analysis related to health and biomedical problems. Emphasis on computational techniques and programs with health examples. Tests of significance for one, two or more populations; general linear model; multivariate analyses of variances and covariances; correlation procedures; principal components and discriminant analyses.

**BIOSTAT695**
Analysis of Categorical Data
Fall term(s)
3 Credit Hour(s)
Instructor(s): Johnson, Timothy
Prerequisites: Biostat 602 and Biostat 660
Regression models for the analysis of categorical data: logistic, probit and complementary log-log models for binomial random variables; log-linear models for cross-classifications of counts; regression models for Poisson rates; and multinomial response models for both nominal and ordinal responses. Model specification and interpretation are emphasized, and model criticism, model selection, and statistical inference are cast within the framework of likelihood based inference.

**BIOSTAT699**
Analysis of Biostatistical Investigations
Winter term(s)
4 Credit Hour(s)
Instructor(s): Gillespie, Brenda W and Taylor, Jeremy
Prerequisites: Registration for last term of studies to complete MS or MPH
Identifying and solving design and data analysis problems using a wide range of biostatistical methods. Written and oral reports on intermediate and final results of case studies required.

**BIOSTAT800**
Seminar in Biostatistics
Winter term(s)
1 Credit Hour(s)
Instructor(s): Banerjee, Mousumi
Presentations and discussions of current consulting and research problems. May be elected more than once. Enrollment limited to biostatistics majors.
**BIOSTAT803**  
Biostatistics in Cancer Seminar  
Fall Winter term(s)  
1 Credit Hour(s)  
Instructor(s): Taylor, Jeremy  
Prerequisites: Perm. Instr.  
The purpose of this class is to describe biostatistical research that is occurring in collaboration with cancer researchers, and to provide exposure to the field of cancer research. Activities include seminars on statistical methods in cancer; presentations of cancer research; presentations of articles from statistical literature; discussion of cancer clinical trial protocols and grant proposals; and visits to research laboratories. Students formally in the training program are expected to enroll in this course every semester. The course is open to students not participating in the training grant. It is open to both PhD and Masters students.

**BIOSTAT815**  
Advanced Topics in Computational Statistics  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Abecasis, Goncalo  
**Not offered 2005-2006**  
Prerequisites: Biostat 601, Biostat 602 and Biostat 625 or equiv and proficiency in Fortran or C  
Modern numerical analysis for statisticians. Combination of theory and practical computational examples illustrating the current trends in numerical analysis relevant to probability and statistics. Topics choose from numerical linear algebra, optimization theory, quadrature methods, splines, and Markov chains. Emphasis on newer techniques such as quasi-random methods of integration, the EM algorithm and its variants, and hidden Markov chains. Applications as time permits to areas such as genetic and medical imaging.

**BIOSTAT820**  
Readings in Biostatistics  
Fall Winter Spring-Summer term(s)  
1-4 Credit Hour(s)  
Instructor(s): Staff  
Students assigned special topics for literature study under guidance of individual faculty members. May be elected more than once. Enrollment limited to biostatistics majors.

**BIOSTAT830**  
Advanced Topics in Biostatistics  
Fall Winter Spring-Summer term(s)  
1-4 Credit Hour(s)  
Instructor(s): Ghosh, Debashis  
Advanced training in biostatistical methods primarily for doctoral students. Format will include lectures, readings, presentations and discussions in an area of special interest to students and faculty, such as stopping rules and interim analysis in clinical trials, conditional and unconditional inference and ancillarity, or nonparametric regression.
**BIOSTAT840**  
Advanced Topics in Data Analysis  
Fall Winter Spring-Summer term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
**Not offered 2005-2006**  
Prerequisites: Biostat 650 and Biostat 651  
Alternate methods of data analysis useful when data do not fulfill unusual assumptions of statistical tests. Using articles from the literature, students learn methods of data analysis more robust than usual methods and how to choose among them. Focuses on comparison of groups, ANOVA and regression.

**BIOSTAT845**  
Advanced Topics in Times Series Analysis  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
**Not offered 2005-2006**  
Prerequisites: Biostat 645, Stat 531 or Perm. Instr.  
Advanced theory of stationary univariate and multivariate time series. Additional advanced topics such as analysis of non-stationary, non-linear, and/or categorical time series; time-frequency analysis; and statistical methods based on the wavelet transform or related transforms. Application of methods to time series data sets from health research.

**BIOSTAT850**  
Research in Biostatistics  
Winter Spring-Summer term(s)  
2-4 Credit Hour(s)  
Instructor(s): Staff  
**Not offered 2005-2006**  
Research on selected topics involving the application of statistical methods to health problems. May be elected more than once. Enrollment limited to biostatistics majors.

**BIOSTAT851**  
Linear Statistical Models (Stat 642)  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
**Not offered 2005-2006**  
Prerequisites: Biostat 602 and Biostat 651 or Perm. Instr.  

**BIOSTAT866**  
Advanced Topics in Genetic Modeling  
Fall term(s)
3 Credit Hour(s)
Instructor(s): Boehnke, Michael L

**Not offered 2005-2006**

Prerequisites: Biostat 601, Biostat 602, Biostat 666 or Perm. Instr.

Advanced topics in quantitative genetics with emphasis on models for gene mapping, pedigree analysis, reconstruction of evolutionary trees, and molecular genetics experiments, computational mathematics, and statistical techniques such as Chen-Stein Poisson approximations, hidden Markov chains, and the EM algorithm introduced as needed.

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**BIOSTAT870**
Analysis of Repeated Measurements
Winter term(s)
3 Credit Hour(s)
Instructor(s): Raghunathan, Trivellore

Prerequisites: Math 417, Biostat 602, Biostat 651 and one of Biostat 690, Biostat 851, or Biostat 890

Mixed model analysis of variance; multivariate profile analysis; linear mixed effects models with unbalanced designs, time-varying covariates, and structured covariance matrices; maximum likelihood (ML), restricted maximum likelihood (REML), and Bayes estimation and inference; nonlinear mixed effects models.

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**BIOSTAT875**
Advanced Topics in Survival Analysis
Winter term(s)
3 Credit Hour(s)
Instructor(s): Nan, Bin

**Not offered 2005-2006**

Prerequisites: Biostat 675

Lectures and readings from the literature on advanced topics in survival analysis. Covers regression for censored data, general event-history data and models, competing risks. Statistical, mathematical, and probabilistic tools used in survival analysis are extended for these general problems.

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**BIOSTAT880**
Statistical Analysis With Missing Data
Fall term(s)
3 Credit Hour(s)
Instructor(s): Little, Roderick

Prerequisites: Biostat 602 and 651, and at least one of Biostat 690, Biostat 851, Biostat 890, or Biostat 895 or Perm Inst.

Statistical analysis of data sets with missing values. Pros and cons of standard methods such as complete-case analysis, imputation. Likelihood-based inference for common statistical problems, including regression, repeated-measures analysis, and contingency table analysis. Stochastic censoring models for nonrandom nonresponse. Computational tools include the EM algorithm, the Gibbs sampler, and multiple imputation.

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**BIOSTAT885**
Nonparametric Statistics
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff

**Not offered 2005-2006**

Prerequisites: Biostat 601/602 or Perm. Instr.

Theory and techniques of nonparametrics and robustness. M-estimation, influence function, bootstrap, jackknife, generalized additive models, smoothing techniques, penalty functions, projection pursuit, CART.

**BIOSTAT890**
Multivariate Statistical Models (Stat 640)

Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff

**Not offered 2005-2006**

Prerequisites: Math 417 and either Stat 511 or Biostat 602 and Perm. Instr.

Derivation of multivariate techniques: multivariate estimation, $T$, criteria for testing linear hypothesis, test for additional information, testing covariance matrices, factor analysis, growth curves and elementary time series.

**BIOSTAT895**
Analysis of Multivariate Categorical Data

Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff

**Not offered 2005-2006**

Prerequisites: Biostat 651 and Biostat 695 or Perm. Instr.

Probability models for two-way tables; multi-factor, multi-response framework; product multinomial distribution theory; Taylor series estimates of variance, weighted least squares and Wald statistics; constraint equations; models for characterizing interactions; step-wise variable selection; factorial designs with multinomial responses; repeated measurement experiments; log-linear models; paired-choice and bioassay experiments; life-table models.

**BIOSTAT990**
Dissertation/Pre-Candidacy

Fall Winter Spring-Summer term(s)
1-8 Credit Hour(s)
Instructor(s): Staff
Prerequisites: (1-8 Full term, 1-4 Half term)

Election for dissertation work by doctoral student not yet admitted to status as a candidate.

**BIOSTAT995**
Dissertation Research for Doctorate in Philosophy

Fall Winter Spring-Summer term(s)
1-8 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Admission to Doctoral Program (1-8 Full term, 1-4 Half term)
Election for dissertation work by doctoral student who has been admitted to status as a candidate.

EHS311
Naturally Occurring Biological Toxins
Winter term(s)
3 Credit Hour(s)
Instructor(s): Piper, Walter
Prerequisites: Biology, Chemistry (organic preferred)
Explanation of principles needed to understand sources, adverse effects, mechanism of action, and
treatment for exposure to naturally occurring toxins from substances such as mushrooms, herbs, plants,
microbes, marine organisms, and insect and animal venom. Implications of bioterrorism will be discussed.

EHS500
Principles of Environmental Health Sciences
Fall term(s)
2 Credit Hour(s)
Instructor(s): Piper, Walter
Prerequisites: Seniors with Perm. Instr.
Basic knowledge and skills requires assessing impacts of environmental health risk factors. Approach
based on articulation of an environmental health paradigm that encompasses a diverse range of
environmental health problem areas. Illustration by reference to specific examples that address the
nature of exposure, dose, response and health outcomes, leading to identification of intervention options.

EHS501
Occupational Environmental Disease
Winter term(s)
2 Credit Hour(s)
Instructor(s): Franzblau, Alfred
Prerequisites: EHS 505, 506 or equivalent
Selected topics in the diagnosis, treatment and prevention of environmental and occupational disease,
including coverage of toxins, exposures, organ systems, and disease. Lectures and case studies address
exposures to solvents, radon, lead and other metals, asbestos and other pneumoconiotic dusts, outdoor
air pollution, indoor air quality, and noise. Major health effects and disease categories covered include
cancer, respiratory disease, and reproductive health. Prerequisites: basic knowledge of human physiology,
and exposure assessment. (These requirements may be taken concurrently with this course).

EHS502
Environmental Health in Developing Areas
Winter term(s)
3 Credit Hour(s)
Instructor(s): Nriagu, Jerome
The course provides a review of basic environmental health knowledge and skills and their applications in
developing areas of the world; case studies from Africa, South America, and Southeast Asia. Delivery will
include lectures, reading assignments individual exercises, and term paper.
**EHS503**
Law and Policy in Environmental Health
Fall term(s)
2 Credit Hour(s)
Instructor(s): Staff

*Not offered 2005-2006*

This course is intended to familiarize students with the laws governing the administrative process by which science is translated into science policy by government in the form of regulations in the areas of environmental health, occupational health and toxicology. The course also illustrates the process by which costs are compared to benefits in choosing the final science policy. Case studies in the form of appellate and Supreme Court opinions are used to illustrate risk-cost-benefit evaluation, the law's use of science, and other topics in law and policy. Syllabus cases illustrate environmental health policy in the areas of hazardous chemicals, clean air, clean water, drinking water, radioactive waste, occupational health, new drug approval, and food additives. The course is also intended to demonstrate how judges analyze issues in areas involving scientific information, that is, to illustrate legal reasoning.

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**EHS504**
Genes and the Environment
Winter term(s)
2 Credit Hour(s)
Instructor(s): Franzblau, Alfred

Prerequisites: None.

In past years disease causation frequently was thought of as a "dichotomy" between genes ("nature") and the environment ("nurture"). More recently this view has been replaced with a more holistic perspective that emphasizes the importance of interactions between genes and environmental and/or occupational exposures. The focus of this course will be on interaction between genes and specific environmental and/or occupational exposures. The course will consist of detailed evaluation of specific examples of gene-exposure interaction (e.g., beryllium-related lung disease, peripheral neurotoxicity from organophosphate pesticides, bladder cancer and amine exposure) the underlying science of such examples, medical consequences, potential policy and social implications of current and future scientific knowledge, and review of current and pending legislation that address these issues. The course will meet for one two-hour session per week, and will be conducted in an advanced seminar-style format. Student will be expected to make presentations and lead discussion, in addition to presentations by faculty and outside guests. Student evaluations will be based on written reports, class participation and class presentation.

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**EHS506**
Principles of Toxicology
Fall term(s)
2 Credit Hour(s)
Instructor(s): Richardson, Rudy

Prerequisites: Biology, Organic Chemistry, Grad Standing or Perm. Instr.

Principles underlying the chemical, physiological and anatomical basis of toxicity. Dose-response relationships, toxicokinetics, and biotransformation, mechanisms of cellular injury and death, organ system toxicity, developmental toxicology, genotoxicity and toxicogenomics, and chemical carcinogenesis. Principles will be illustrated where appropriate with specific examples of toxicity from environmental contaminants and pharmaceutical agents.
EHS507
Principles of Exposure Assessment
Fall term(s)
2 Credit Hour(s)
Instructor(s): Robins, Thomas
Prerequisites: BIOS 503, EPID 503, EPID 601, EHS 505 (concurrent enrollment is acceptable) or Perm. Instr.
This course is designed to provide the knowledge and skills necessary to assess exposure to environmental agents. Topics include the selection of study populations; the conditions under which people or other target species could be exposed; identification and quantification of exposure pathways; the design of exposure assessment strategies; integration of exposure and population information; and the evaluation of historical (exposure reconstruction), current and prospective exposures. The course focuses on occupational and environmental settings and includes chemical, biological (bacteria, fungi, pathogen) and physical agents that may be air-, water-, food- or vector-borne.

EHS508
Principles of Risk Assessment
Fall term(s)
2 Credit Hour(s)
Instructor(s): Garabrant, David
Prerequisites: EHS 507, Epidemiology (concurrent enrollment acceptable) or Perm. Instr.
This course is designed to provide the knowledge and skills necessary to understand risk assessment methods. Students will understand the use and limitations of risk assessment in establishing exposure standards, acceptable concentrations, and the environmental criteria for hazardous substances that present a risk of carcinogenic or other health effects and the suitability of risk assessment for such purposes. The basic approaches to environmental risk assessment will be emphasized, including methods for identifying health effects, modeling of health effects, and derivation of risk estimates. Methods for dealing with uncertainties as well as limitations and criticisms of risk assessment methods will be discussed. Specific examples of risk assessments will be analyzed and critiqued.

EHS513
Pathologic Basis of Disease
Fall term(s)
3 Credit Hour(s)
Instructor(s): Philbert, Martin
This course will examine the major pathological processes of humans and mammals elicited by chemical, biological and physical entities of interest to practitioners of Public Health. Specifically, the pathophysiological mechanisms of disease will be examined with a view to understanding the cellular, biochemical and molecular processes that cover injury, degeneration and regeneration.

EHS515
Naturally Occurring Biological Toxins
Winter term(s)
3 Credit Hour(s)
Instructor(s): Piper, Walter
Prerequisites: Biology, Chemistry (organic preferred)
Explanation of principles needed to understand sources, adverse effects, mechanism of action, and treatment for exposure to naturally occurring toxins from substances such as mushrooms, herbs, plants, microbes, marine organisms, and insect and animal venom. Implications of bioterrorism will be discussed.

EHS530
Nutrition in Public Health
Winter term(s)
2 Credit Hour(s)
Instructor(s): Kannan, Srimathi
Principles of normal nutrition and relation of nutrition to health. Designed for graduate students in other programs and schools, especially students in health education, physical education and nursing.

EHS531
Herbs and Dietary Supplements
Winter term(s)
2 Credit Hour(s)
Instructor(s): Tsai, Alan
Prerequisites: Biology
The course will examine the status of the usage, production, claimed effects, mechanism of effects and potential misuse and safety of the major herbs and dietary supplements in the US. The course will carefully review the literature and examine the evidence that support the claimed or alleged effects. The course will also discuss the government and industry rules and regulations and the controversies associated with the use of these products.

EHS540
Maternal and Child Nutrition
Winter term(s)
2 Credit Hour(s)
Instructor(s): Kannan, Srimathi
Explores the nutritional requirements and support associated with the physiologic changes of pregnancy, lactation, and fetal, infant, child and adolescent growth. Review of recent nutrition issues and recommendations related to mothers and children.

EHS547
Food Science
Fall term(s)
3 Credit Hour(s)
Instructor(s): Mancuso, Peter
Prerequisites: Organic Chemistry
An examination of food composition and the chemical and physical changes that result from food processing. Discussion of foods as complex systems containing a wide variety of chemicals including nutrients, phytochemicals, functional ingredients, natural or transferred toxins and additives. Discussion of changes in chemicals with different types of food preservation. Consideration of health risks associated with dietary exposure to selected nutrients and other chemicals. Exploration of the role of sensory analysis related to food acceptance. Overview of important regulations related to the content of food products.
EHS550
Industrial Hygiene
Fall term(s)
1-3 Credit Hour(s)
Instructor(s): Vincent, James
Prerequisites: Grad Status or Senior Standing
Basic concepts of industrial hygiene and occupational health hazards. Physical, chemical and radiological health stresses of the industrial environment; sources, effects, measurement, evaluation and control of exposure. The course is offered as a three-credit course in both the regular term and in the OJ/OC format. Industrial hygiene majors, who take all core IH courses, may elect this course for 1-2 credits.

EHS556
Occupational Ergonomics
Not offered 2005-2006
2 Credit Hour(s)
Instructor(s): Staff
Principles, concepts and procedures concerned with worker performance, health and safety. Topics include: biomechanics, job safety, anthropometry, work physiology, psychophysics, work stations, tools, work procedures, work standards, Musculoskeletal disorders, noise, vibration, heat stress and the analysis and design of work.

EHS570
Water Quality Management
Fall Winter term(s)
3 Credit Hour(s)
Instructor(s): Nriagu, Jerome
Principles of science and engineering used in the evaluation and control of water quality. Includes current legislation, types of pollution, sources and nature of pollution, introduction to water quality management practices, water supply and treatment, hydrologic concepts, effects of waste discharge on receiving waters, lake management, and water quality criteria and standards.

EHS571
Water Quality Management Practices
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: EHS 570
Principles and methods in water quality management. Methods, applications, and water quality considerations associated with water reclamation and re-use; soils and sediments as factors in water pollution control; flow regulation for water quality management; economics and institutions in water quality management.

EHS572
Environmental Impact Assessment (NRE 514)
Fall term(s)
2 Credit Hour(s)
Instructor(s): Batterman, Stuart
Prerequisites: EHS 574, Grad Status
A comprehensive framework for predicting and evaluating environmental impacts is presented. The course emphasizes the theory, application, integration and evaluation of models simulating transport and fate of contaminants in air, surface and ground water, and soil. Case studies and computer exercises demonstrate contemporary exposure and health risk assessment problems.

EHS574
Environmental Chemistry
Fall term(s)
3 Credit Hour(s)
Instructor(s): Nriagu, Jerome
Prerequisites: College Chemistry including Organic Chemistry and Calculus
Environmental chemistry of the atmosphere, hydrosphere, geosphere and soils. Review of physical and chemical hazards and sources, distribution, transformations, routes to man of environmental contaminants. Human exposure assessment procedures and applications in health risk analysis programs.

EHS575
Population-Environmental Dynamics (SNRE 545)
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff
This course examines the dynamics of the relationship between human populations and the global environment with a focus upon critical time periods in the evolution of societies. Population-environment dynamics are visualized as a family of transitions occurring across many sectors of society. Transitions examined include forestry, agriculture, demography, epidemiology, toxicity (air and water pollution, solid waste), urbanization, energy, transportation, and education.

EHS578
Practical Projects
Fall Winter Spring Spring-Summer Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: None
Practical Projects in the application of theory and principles of Environmental Health Sciences in public health settings. Course requirements include an approved practical work experience related to Environmental Health Sciences in consultation with a faculty advisor. May be elected more than once. Enrollment limited to Environmental Health Sciences majors with at least two full terms of prior registration.

EHS579
Environmental Risk Communication (SNRE 551)
Fall term(s)
1 Credit Hour(s)
This course provides a brief introduction to environmental risk assessment and management and then focuses on environmental risk communication. With the help of case studies, students evaluate existing risk communication practices and formulate ways to change these practices such that they will lead to improved environmental risk decisions.

**EHS580**
Conservation of Biological Diversity (SNRE 517)
Fall term(s)
4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Graduate Standing or Perm. Instr.
Overview of historic and present-day causes of species extinction, and of biological principles central to species conservation and sustainable management of ecosystems.

**EHS581**
Principles of Radiological Health
Winter term(s)
1 Credit Hour(s)
Instructor(s): Miklos, Joseph
Prerequisites: Calculus
Broad principles and practices of radiological health for environmental and occupational health generalists. Basic physics, measurement, control of radiation sources and bioeffects, risks, and control policies. Lectures and demonstrations.

**EHS582**
Principles of Community Air Pollution
Winter term(s)
3 Credit Hour(s)
Instructor(s): Keeler, Gerald
Discussion of economic, nuisance, and health aspects, emphasizing sources, causes, effects, control measures, and the organization and administration of community control programs.

**EHS583**
Radiation Biology
Fall term(s)
3 Credit Hour(s)
Instructor(s): Ljungman, Mats
Prerequisites: Biology
Integration of current knowledge about radiation effects processes on mammals, with particular emphasis on mechanisms of radiogenic cancer. Quantitative evaluation of relations between characteristics of various radiation exposures and somatic and genetic effects in humans. Radiation protection and therapeutic measures. Lectures and a student research paper.
EHS585
Food Safety Management
Winter term(s)
3 Credit Hour(s)
Instructor(s): Mancuso, Peter
Prerequisites: Grad status
Evaluation of Food safety from multiple perspectives, including microbial and chemical (pesticide residues, food packaging materials, inorganic/organic materials) contamination. Identification of methods for estimating exposure to chemicals carried by food. Identification of food services systems and methods for quality control/changing the risks for food contamination. Utilization of HACCP (Hazardous Analysis Critical Control Point) in different food service situations. Provision of managerial level training course for inspection/monitoring of food establishments.

EHS586
Introductory Seminar in Environmental Health Sciences
Fall term(s)
1 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Grad Standing
An overview of research and practice in the field of environmental health sciences. This weekly seminar is designed to introduce entering students to EHS faculty, to highlight topical issues, and to provide a common forum for EHS students. EHS faculty will introduce their specialty areas and present short seminars on their research. Approximately once per month (coinciding with OJ/OC weekends), outside speakers will present seminars addressing crosscutting issues in the environmental health sciences. The seminar is required for all first-year students.

EHS588
Environmental Law (SNRE 475)
Fall Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Introduces students to Environmental Law and the impact of the legal process on decisions that affect the environment. Topics include common law tort actions, toxic tort actions, statutory controls of pollution and other environmentally harmful activities. Additional areas include administrative agency structure and performance, Constitutional rights to environmental quality and more.

EHS591
Equity Issues in Environmental Health
Winter term(s)
1 Credit Hour(s)
Instructor(s): Nriagu, Jerome
Prerequisites: Grad Status
The course will examine equity issues in environmental health research and practice. Emphasis will be on the sources of inequity (specific environmental hazards), and documentation of environmental injustice using different spatial scales and time frames. It will provide a commentary on the desirability for affected communities to have meaningful input into the design and implementation of environmental health assessment, as well as in the use and communication of the results.

**EHS600**  
Professional Perspectives in Environmental Health  
Fall Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Piper, Walter  
Prerequisites: Grad Status, Completion of approved internship, research or practical experience  
This course provides a forum for integration of academic principles, practical skills and concepts in environmental health as related to the broader scope of public health. Students will attend presentations designed to provide information on applications of academic knowledge and integration of the public health perspective to real world problems. Students will provide oral and written reports on an approved internship, work experience or research project conducted during their academic program that focuses on the integration of public health principles and practices. This culminating capstone course will be elected during the professional students last term in residence.

**EHS612**  
Biochemical and Molecular Toxicology  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Harris, Craig  
Prerequisites: Biol Chem 515 or equivalent, EHS 511  
The objective of this course is to provide an in-depth analysis of the biochemical and molecular pathways altered in cells and organisms through exposure to environmental and therapeutic chemicals. The content is directed toward the needs of doctoral and masters students in the basic biomedical sciences involved in laboratory research projects. Topics will cover areas of modern research emphasis and focus on how chemicals act to disturb cellular processes through interaction with cellular receptors, ion channels, transporters, signal transduction pathways, transcription factors, metabolic pathways, enzymes, cytoskeletal elements and other macromolecular targets. Specific information about the latest theories on the regulation and initiation of cell death, mediation of toxicity through redox status and oxidative stress, mechanisms of carcinogenesis, genotoxicity and immunotoxicology will also be discussed.

**EHS616**  
Introduction to Toxicological Pathology  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Philbert, Martin  
Prerequisites: Physiology and EHS 511 or equivalent.
This course will provide an introduction to the histologic damage produced by chemical toxicants. A combination of lectures, student-led discussions and slide-reading sessions will be used to integrate concepts of toxicological mechanism, physiology and pathologic outcome. Emphasis will be placed on molecular methods and mechanisms used for the diagnosis and investigative toxicological pathology. The pathology associated with chemicals that damage the major organ systems of humans and mammals will be discussed. During the two credit hours of didactic class presentations student will lead discussions on the pathologic effects of chemicals on cells, tissues and organs and the pathophysiologic outcome. This course is intended for advanced graduate students in the life sciences.

**EHS620**  
Mechanisms of Endocrine Toxicology and Hormone Metabolism  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Piper, Walter  
Prerequisites: Grad Status, Biochemistry, Physiology  
Analysis and integration of scientific information to enhance understanding of molecular and cellular mechanisms of endocrine toxicity. Emphasis is on student discussion of theoretical and practical aspects of mechanistic studies based on assigned reading from the scientific literature.

**EHS621**  
Mechanisms of Carcinogenesis  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Piper, Walter  
Prerequisites: Biochem 515, Epid 515 or equivalent  
This course analyzes and integrates genetics, molecular and cellular factors into mechanisms of carcinogenesis. These factors and their interactions with the environment are applied to hypothesis building and testing, risk assessment and management. Breast cancer is the model for the study.

**EHS622**  
Mechanisms of Developmental Toxicology  
Fall term(s)  
2 Credit Hour(s)  
Instructor(s): Harris, Craig  
Prerequisites: Grad Status, Biochem 515 or equiv  
Integration and analysis of scientific information to enhance understanding and elucidate biochemical and molecular mechanisms in developmental toxicology. Course emphasis is on student discussions of the theoretical and practical aspects of embryology as related to biochemical, physiological and molecular mechanisms of embryotoxicity based on readings from the scientific literature.

**EHS623**  
Mechanisms of Reproductive Toxicology  
Fall term(s)  
2 Credit Hour(s)  
Instructor(s): Loch Caruso, Rita  
Prerequisites: Grad Status, Biochemistry, Physiology
Analysis and integration of scientific information to enhance understanding of molecular and cellular mechanisms of reproductive toxicity. Emphasis is on student discussion of theoretical and practical aspects of mechanistic studies based on assigned reading from the scientific literature.

**EHS624**  
Mechanisms of Neurotoxicology  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Richardson, Rudy  
Prerequisites: Grad Status, Biochemistry, Physiology  
Analysis and integration of scientific information to enhance understanding of molecular and cellular mechanisms of neurotoxicity. Emphasis is on student discussion of theoretical and practical aspects of mechanistic studies based on assigned reading from the scientific literature.

**EHS625**  
Environment and the Immune Response  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Mancuso, Peter  
Not offered 2005-2006  
Prerequisites: EHS 506, EHS 513, or permission of the instructor  
Environmental and occupational exposures to pollutants and toxicants in air, water, and food, whether synthetic or natural, influence human health by interacting with the hosts immune system. These exposures can either initiate or exacerbate human disease. The course will consist of detailed evaluations of papers, chosen by the students, that explore the impact of environmental and occupational exposures on immunesuppression, autoimmunity, or hypersensitivity. Students will lead discussions, make presentations, and write a grant proposal or a report.

**EHS628**  
Toxicology Research Analysis and Presentation  
Winter term(s)  
1 Credit Hour(s)  
Instructor(s): Richardson, Rudy  
Prerequisites: EHS627  
Presentations of research topics from current literature by first year students. Advisors will assist in selection and preparation of materials for presentation. Course is designed to develop oral communication skills for presenting scientific material to peer groups. Presentations followed by discussion and questions.

**EHS630**  
Principles of Nutritional Science  
Fall term(s)  
4 Credit Hour(s)  
Instructor(s): Tsai, Alan  
Prerequisites: Biochemistry
Integration of biochemical and physiological principles of nutrient utilization, nutrient interactions, and the control and regulation of metabolic processes in humans.

EHS631
Advanced Nutritional Science
Winter term(s)
4 Credit Hour(s)
Instructor(s): Tsai, Alan
Prerequisites: EHS 630
In-depth review of recent advances in selected areas of nutrition. Emphasis on topics of current research interest. Topics include vitamin metabolism, mineral bioavailability and analysis, nutrition and immune function, amino acid relationship, drug-nutrient interactions, and nutritional biochemistry and metabolism in altered physiologic conditions.

EHS635
Principles of Laboratory Research Techniques in Nutrition
Winter term(s)
2-4 Credit Hour(s)
Instructor(s): Tsai, Alan
**Not offered 2005-2006**
Prerequisites: EHS 630 or Perm. Instr.
Discussion and practice of selected biochemical methods used in nutritional research. Emphasis placed on understanding the principles of experimental design and laboratory procedures including diet formulation and on the significance of laboratory results.

EHS636
Clinical Nutrition
Fall term(s)
4 Credit Hour(s)
Instructor(s): Han-Markey, Theresa
Prerequisites: EHS 630
Study of basic therapeutic nutrition skills, with emphasis on pathophysiology and current intervention approaches. Basic nutritional approaches for management of common disease conditions, rationale, and evidence for efficacy. Current controversies are briefly introduced. Clinical nutrition assessment, use of clinical laboratory data, and basic rationale for critical care interventions are reviewed. Incorporates case study instructional modules. Diseases covered include diabetes, cardiovascular disease, gastrointestinal disease, and food allergy.

EHS637
Advanced Clinical Nutrition for the Critically Ill Patient
Winter term(s)
2 Credit Hour(s)
Instructor(s): Staff
**Not offered 2005-2006**
Prerequisites: EHS 630, EHS 631, EHS 636 (or concurrent enrollment)
In-depth exploration of clinical nutrition in the management of the critically ill patient. Covers topics such as regulation of fluid and electrolytes in nutrition support, acid-base balance, and other aspects of parenteral nutrition. Emphasis on knowledge and skills in nutrition and diseases such as acute renal failure, sepsis, trauma, respiratory insufficiency, multiorgan dysfunction, and in the preoperative patient.

**EHS638**  
Advanced Clinical Nutrition in Chronic Diseases  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Staff  
**Not offered 2005-2006**  
Prerequisites: EHS 630, EHS 631, EHS 636 (or concurrent enrollment) or equiv  
Review of recent advances in clinical nutrition in the management of specific chronic disorders and illness. Knowledge and skills of current management issues in patients with cancer, genetic disorders such as cystic fibrosis, organ transplantation, inflammatory bowel disease, neurologic disorders such as Parkinson's and Alzheimer's, and acquired immunodeficiency syndrome. Issues in management and rationale for treatment approaches in chronic debilitating illnesses, complications of long-term metabolic disorders, and high-risk pregnancy.

**EHS639**  
Obesity and Eating Disorders (Psych 642)  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Sandretto, Anita  
Metabolic, physiological, and psychological determinants of diet choice and dietary behavior. Disorders in regulation of food intake and different intervention strategies will be discussed. Course integrates readings from experimental literature of both psychology and medicine and provides opportunity to develop and analyze intervention strategies.

**EHS640**  
Nutritional Assessment  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Tsai, Alan  
Prerequisites: EHS 630, Nutrition Science  
Didactic and laboratory presentation of anthropometric, biochemical, dietary and physical activity methods for determining nutritional status across all ages of the life cycle. Students will have the opportunity to identify, plan, and implement a simple nutritional assessment research project, with subsequent data management, analysis and interpretation.

**EHS642**  
Community Nutrition  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Sandretto, Anita  
Prerequisites: EHS 630
An analysis of community programs with primary attention on goals, objectives, implementation and evaluation. Individuals work on a problem in the area of food assistance or nutrition education programs is carried out under the tutorial guidance of an appropriate staff member. Regular conferences are arranged to measure progress and a report is prepared.

**EHS643**
Food and Nutrition Policy and Programs
Winter term(s)
3 Credit Hour(s)
Instructor(s): Sandretto, Anita
Prerequisites: Perm. Instr.
This course is designed to expose students to the history and development of federal nutrition policy, for example, the Dietary Guidelines for Americans, the Food Guide Pyramid and National Food Labeling and Education Act. The legislation, administration and evaluation of federally sponsored public health programs and mandate nutrition services will be reviewed and the implementation at state levels will be discussed.

**EHS645**
Nutrition Education: Theory and Practice
Fall term(s)
3 Credit Hour(s)
Instructor(s): Kannan, Srimathi
Prerequisites: Grad Status
This advanced course in nutrition education combines both research and practice. The course will address: 1) theories from education, human development, psychology, and communications that guide nutrition education research and practice, 2) theoretical and pragmatic issues in the development and implementation of nutrition education programs, and 3) methods and techniques used to evaluate nutrition education programs.

**EHS647**
Seminar in Nutrition
Fall Winter term(s)
1 Credit Hour(s)
Instructor(s): Tsai, Alan
Critical reviews of current literature on selected topics and controversies in nutrition, preparation of abstracts and summary reports, and presentation of summarized information in seminar.

**EHS651**
International Environmental Management System Standards (Bus School & SNRE)
Fall term(s)
2 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Grad Status or Perm. Instr.
This course provides a comprehensive framework for the understanding of international management standards as applied to environmental and occupational health, with a focus on the rapid globalization of the regulatory environment in response to international trade. Topics will be the International Standards Organization (ISO) 9000 series standards for production system quality management, the ISO 10000 series standards for quality management auditing, the ISO 14000 series standards for environmental management and environmental system auditing, and the proposed standards for occupational health and safety management systems. Auditing methods will be a primary focus of this course.

**EHS652**
Evaluation of Chemical Hazards
Fall term(s)
3-4 Credit Hour(s)
Instructor(s): Zellers, Edward
Prerequisites: Previous or concurrent enrollment in biostatistics course
Concepts and techniques related to the evaluation of occupational exposures to gases, vapors, and aerosols. Emphasis on operating mechanisms and practical aspects of industrial hygiene air-monitoring equipment, characterizing exposure distributions, and developing sampling strategies. Lectures, laboratory exercises, demonstrations, problems, technical reports, and reading. Primarily for students in occupational health and safety.

**EHS653**
Environmental Sampling and Analysis Laboratory
Winter term(s)
3 Credit Hour(s)
Instructor(s): Zellers, Edward
Prerequisites: EHS 652
Laboratory and lecture course on equipment, instrumentation, methodologies, and strategies for measuring environmental chemical and biological contaminants. A primary emphasis is placed on air monitoring for human exposure assessment in the workplace and general environment. Dermal, surface, soil, and water contamination measurements are also covered. Lectures, laboratories, and demonstrations. Primarily for students in environmental health sciences with interests in occupational and ambient-environmental exposure assessments for regulatory compliance and epidemiologic risk estimation.

**EHS654**
Ventilation for Contaminant Control
Winter term(s)
3 Credit Hour(s)
Instructor(s): Vincent, James
Prerequisites: Grad status
Discussion of how ventilation is used to control airborne contaminants in workplaces. Topics include basic properties of airflow and contaminants, types of ventilation systems, dilution ventilation, design of local exhaust systems, fan performance and selection, duct design, air cleaning equipment, ventilation testing, OSHA standards, indoor air quality, and others.

**EHS655**
Occupational Injury Prevention
**Winter term(s)**

3 Credit Hour(s)

Instructor(s): Staff

**Not offered 2005-2006**

Introductory Biostatistics and Epidemiology

This course will describe the application of injury control principles to occupational injury. A specific focus will be the impact of public policy interventions on injury prevention. The goals of this course are to impart the conceptual framework of injury control applied specifically to occupational injuries, and to acquaint the student with how public policy, as well as policy in the private sector, affect the rate and distribution of occupational injury. Students will be expected to describe major dimensions of occupational injury problem in the U.S.; identify major risk factors associated with occupational injury; understand major approaches to occupational injury prevention; and to recognize the sources and influences of public policy on occupational injury prevention.

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**EHS656**

Research Methods in Occupational Health

Fall term(s)

3 Credit Hour(s)

Instructor(s): Robins, Thomas

This course provides an integrated approach to occupational health research design and methodology. Topics include: research problem formulation; choice of study design; source of data; data analysis and strategies; SMR and PMR studies; healthy worker effect; case-control studies of occupational cancer; occupational pulmonary and neurology morbidity studies.

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**EHS658**

Physical Hazards

Fall term(s)

1 Credit Hour(s)

Instructor(s): Zellers, Edward

**Not offered 2005-2006**

Prerequisites: Graduate Standing or Perm. Instr.

Lectures, discussions, demonstrations on the health effects, measurements methods, regulations, and control technologies related to physical health hazards encountered in occupational settings, including temperature extremes, noise, vibration, and lasers and other forms of non-ionizing radiation (rf, microwave, IR, visible, and UV).

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**EHS659**

Occupational Injury Prevention Seminar

Winter term(s)

1 Credit Hour(s)

Instructor(s): Franzblau, Alfred

The focus of this seminar is on current research related to occupational injury, particularly prevention. It will provide an overview of cutting edge research by having seminar presentations for current investigators in the field of occupational injury research. The goals of the seminar are to introduce the students to current research and to introduce the students to injury researchers who might be able to provide mentorship to student research projects related to occupational injury.
EHS668
Professional Seminar in Occupational Health
Winter term(s)
1 Credit Hour(s)
Instructor(s): Garabrant, David
Seminars in contemporary occupational health topics and issues. Presentations by noted authorities from industry, labor organizations, governments, and academia.

EHS671
Air Pollution Chemistry (AOS 578)
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Tropospheric and stratospheric air pollution are discussed following a review of thermochemistry, photochemistry and chemical kinetics. Gaseous and particulate air pollutants are considered in terms of their origins and transformations.

EHS680
Environmental Management of Hazardous Substances
Winter term(s)
3 Credit Hour(s)
Instructor(s): Batterman, Stuart
Prerequisites: Perm. Instr.
Contemporary and emerging approaches to pollution and waste management that integrate public health, engineering, economic, and regulatory factors related to hazardous substances. Presentation of site assessment, exposure and risk assessment, and permit application practices, impact assessment in pollution prevention, and risk-cost-benefit analysis. In-depth analysis of selected topics using case studies of ongoing or proposed actions.

EHS687
Air Quality Seminar
Fall Winter term(s)
1 Credit Hour(s)
Instructor(s): Keeler, Gerald
Prerequisites: Perm. Instr.
Advanced topics in air quality control and research will be presented by leading experts in the field and by students. Sample areas to be covered include urban air pollution, health effects of air pollutants, tropospheric ozone, acid deposition, global warming, indoor air quality, the Clean Air Act, hazardous pollutant deposition, global transport, and air-surface exchange of pollutants. The course will also emphasize current topics in the field that are of importance to policy makers and regulators. The course is offered both Fall and Winter terms and may be taken more than one.

EHS688
Topics in Environmental Health Sciences
Fall Winter term(s)
1 Credit Hour(s)
Instructor(s): Sandretto, Anita

Seminars in contemporary environmental health topics and issues. Presentations by noted authorities from industry, labor organizations, governments, and academia.

**EHS697**
Readings
Fall Winter Spring Summer term(s)
1-3 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr
Supervised study/review of a selected topic in environmental health, occupational health, nutrition and/or toxicology. May be elected more than once for a maximum of six credits.

**EHS698**
Research
Fall Winter Spring Summer term(s)
1-6 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Original research investigation of a special topic in environmental health, occupational health, nutrition and/or toxicology. May be elected more than once for a maximum of six credits.

**EHS699**
Masters Thesis
Fall Winter Spring Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm of Thesis Advisor
This course shall be elected by students enrolled in Masters degree programs that require a formal written thesis as a condition of program completion. The thesis shall be defended in front of the students thesis committee. The course grade will reflect the students accomplishments relative to the thesis and its defense. The course is to be elected only once.

**EHS717**
Toxicological Pathology Laboratory
Winter term(s)
1 Credit Hour(s)
Instructor(s): Philbert, Martin
Prerequisites: EHS 616 or Perm. Instr.
This laboratory course will provide an introduction to the histopathology associated with chemical exposures. Students will perform routine histological maneuvers on tissues from rats treated with unknown chemicals. Following microscopic inspection of tissues, students will describe the pathological process produced in each tissue and will identify the class of (or specific) chemical to which the organism was exposed.

**EHS728**
Current Topics in Toxicology
Fall Winter term(s)
1 Credit Hour(s)
Instructor(s): Staff

Not offered 2005-2006
Research presentations at the advanced level focused on mechanisms of toxicity. May be elected more than once.

EHS757
Occupational Health Aspects of Industrial Processes
Fall term(s)
2 Credit Hour(s)
Instructor(s): Vincent, James
Prerequisites: EHS 550 or equiv and Perm. Instr.
Observation and discussion of selected industrial processes, potential hazards, and controls. Potential hazards include chemical, physical, biological, and ergonomic. Emphasis on application and integration of different aspects of occupational health management. Field trips to various industrial plants. Guest lectures and student-lead discussions. Intended for second-year Industrial Hygiene and Occupational Medicine students.

EHS869
Doctoral Seminar in Occupational and Environmental Health
Fall term(s)
1 Credit Hour(s)
Instructor(s): Loch Caruso, Rita and Richardson, Rudy
Prerequisites: EHS Doctoral Student Status
Integrative discussions of dissertation research projects, presentation of research findings, in-depth literature reviews/critiques, and manuscript reviews in occupational and environmental health.

EHS899
Advanced Research
Fall Winter Spring Summer term(s)
1-6 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Original investigations of a specific topic in environmental health, occupational health, nutrition and/or toxicology. Designed for doctoral students performing research prior to passing their qualifying exam. May be elected more than once.

EHS990
Dissertation/Pre-Candidacy
Fall Winter Spring Summer term(s)
1-8 Credit Hour(s)
Instructor(s): Staff
Election for dissertation work by doctoral students not yet admitted to status as candidate.
EHS995
Dissertation Research for Doctorate in Philosophy
Fall Winter Spring Summer term(s)
8 Credit Hour(s)
Instructor(s): Staff
Election for dissertation work by doctoral students who have been admitted to status as candidate.

EPID 818
Methodological Issues in Cancer Epidemiology
Winter term(s)
2 Credit Hour(s)
Instructor(s): Amr, Soliman
Not offered 2005-2006
Prerequisites: Epid 621 and either Epid 503 or Epid 601, or permission of the instructor
This course applies the principles developed in the introductory cancer epidemiology course to the study of advanced methods in cancer epidemiology. The course covers methodologic issues in the conduct of research in cancer etiology, prevention, and control. Topics include use of case-case study designs, cohorts, and nested case-control studies. Other topics include alternative study designs for the use of intermediate biomarkers and gene-environment interaction, molecular and cellular basis of cancer, and mechanisms of carcinogenesis. Emphasis on integration of epidemiologic data with laboratory and clinical research findings will be highlighted. Cancer control is addressed by a review of cancer screening and prevention and burden of proof for evidence-based screening and prevention policies.

EPID460
Introduction to Bacterial Pathogenesis
Fall term(s)
3 Credit Hour(s)
Instructor(s): Marrs, Carl F
Prerequisites: Introductory Microbiology and Biochemistry or Perm. Instr.
This course covers the basics of the biochemistry, molecular biology, and genetics of chemotaxis and flagella, pili and adhesins, extracellular proteases, bacterial toxins, invasion and intracellular growth, phase and antigenic variation, gene transfer, LPS, iron, M-proteins, capsules, chemotherapy, antibiotic resistance and global regulation of virulence elements.

EPID503
Strategies and Uses of Epidemiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Diez-Roux, Ana
Prerequisites: Biostat 503, Grad Status
Basic epidemiology for the public health professional, with review of fundamental principles and concepts, and application to selected examples of chronic, non-infectious diseases and infectious diseases. Designed for students without a doctoral degree.

EPID506
Health of Nations: Introduction to International Health
EPID511
Introduction to Public Health Genetics
Fall term(s)
3 Credit Hour(s)
Instructor(s): Marrs, Carl F and Richards, Julia
Prerequisites: Grad status or perm instructor
This course is designed for those interested in a basic understanding of human genetics who have had only a very limited exposure to biologic sciences. This course will cover the basics of genetics at both the molecular and population level. In addition to the basic science, some ethical, legal, and social implications of genetics research will be examined. Examples relevant to public health will be emphasized.

EPID513
Applications in Public Health Genetics
Fall term(s)
1 Credit Hour(s)
Instructor(s): Kardia, Sharon
A forum for discussing applications of public health genetics and for integrating recent developments in human genetics into the breadth of public health genetics. Topics will be inclusive, from genetics and molecular biology, to assessment, policy development, screening for genetic susceptibility, and ethical, legal, and social issues as they apply to delivery of public health genetics.

EPID514
Social Epidemiology
Fall term(s)
3 Credit Hour(s)
Instructor(s): Kaplan, George
Prerequisites: EPID 503 (or equiv), Biostat 503 (or equiv)
Considers the uses of epidemiology with emphasis on the social determinants of chronic diseases and premature mortality. Theoretical as well as methodological issues in conducting social epidemiology research are emphasized. Designed for graduate students who have prior familiarity with the basic principles and methods of epidemiologic research.

EPID515
Genetics in Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Kardia, Sharon
Prerequisites: Perm. Instr. or two undergraduate genetic courses.
This course is designed for students with a background in biology or genetics that are interested in understanding genetics in public health. This course will provide an in depth examination of genetics in public health including newborn screening diseases and practices, fundamentals of population genetics, and the genetics of common chronic diseases.

**EPID516**
Genomics in Epidemiology
Winter term(s)
4 Credit Hour(s)
Instructor(s): Peyser, Patricia A
Prerequisites: Epid 503 or equivalent; Epid 515 or equivalent; Biostat 503 or equivalent
This course relates genomics to the core public health discipline of epidemiology emphasizing the use of genomics to help describe disease frequency and distribution and to gain insights into biological etiologies. Topics include genetic material in disease, in families and in populations; the investigation of multifactorial traits; model-based linkage analysis; model-free linkage analysis; segregation analysis; allele association and linkage disequilibrium; and gene-gene interactions and gene-environment interactions. Issues related to implementing studies are considered.

**EPID519**
Introduction to Principles and Methods of Molecular Epidemiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Marrs, Carl F
Not offered 2005-2006
Prerequisites: EPID 601
This course presents an introduction to the principles of the molecular techniques used in epidemiologic investigations. Emphasis will be on the development of a general understanding of the techniques and vocabulary necessary to communicate with researchers and laboratory personnel involved in the study of disease both at the individual and population level.

**EPID520**
Immunologic and Cellular Basis for Disease
Fall term(s)
3 Credit Hour(s)
Instructor(s): Rochford, Rosemary
Not offered 2005-2006
Prerequisites: Grad Status and Perm. Instr.
This course will examine the cellular and molecular basis of disease with an emphasis on the role of the immune system in the pathogenesis of both chronic and infectious disease. The course will cover techniques used in the study of pathogenesis, a review of fundamental immunology, and a discussion of the role of the immune system in the pathogenesis of both chronic and infectious disease. The course will include both lectures and discussion of current research articles relevant to the course content. Designed for students with backgrounds in biology

**EPID524**
AIDS: A Public Health Challenge
Winter term(s)
3 Credit Hour(s)
Instructor(s): Monto, Arnold S
Prerequisites: Upper Division or Grad Status
Lectures will describe the fundamental issues necessary for understanding the public health crisis presented by the AIDS epidemiologic, including the virology of HIV, immune response and natural history, provision of care, prevention, legal/ethical issues. Includes opportunity for small group discussion of policy formulation. For those students satisfactorily completing a paper on a special topic in AIDS, an additional credit hour is available.

EPID525
Clinical and Diagnostic Microbiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Newton, Duane
Prerequisites: At least 1 prior microbiology course or permission of the instructor
This course will provide students with an introduction to methods used by clinical microbiology laboratories to recover and identify bacteria, fungi, parasites, and viruses from human clinical specimens. The focus will be on organisms that are clinically relevant and will demonstrate the role of the clinical microbiology laboratory in patient management.

EPID543
Virus Diseases
Winter term(s)
2 Credit Hour(s)
Instructor(s): Gerrard, Sonja
Prerequisites: Pathogenic Bacteriology
The nature of viruses including replication, transmission, pathogenesis, pathology, antigenic relationships and preventive measures

EPID545
Viral and Molecular Techniques Laboratory
Winter term(s)
3 Credit Hour(s)
Instructor(s): Marrs, Carl F
Prerequisites: Perm. Instr.
Methods, including procedures, employed in the study and identification of viruses and virus diseases, Molecular techniques used in virology, bacteriology, and molecular epidemiology. Techniques covered include PCR, flow cytometry, gel electrophoresis, recombinant DNA technology, westerns and bacterial typing procedures.

EPID546
Advanced Virology
Fall Winter Spring Summer term(s)
2-6 Credit Hour(s)
Instructor(s): Staff  
Prerequisites: EPID 543 and EPID 545  
Advanced laboratory studies of viruses and virus diseases with emphasis upon the application of procedures to investigation. May be elected more than once.

**EPID550**  
Reproductive Epidemiology  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Harlow, Sioban  
**Not offered 2005-2006**  
Prerequisites: EPID 503 or EPID 601 or Equiv and Perm. Instr.  
This course will provide an overview of epidemiologic methods for the study of reproductive outcomes including menstruation, fertility, pregnancy loss, birth outcomes, and maternal morbidity and mortality. Measurement of these outcomes, problems of study design, selection of study populations, common biases and problems of sample size calculation will be covered. This course is intended for people with a basic understanding of epidemiologic methods. The course will be limited to a maximum of 20 students. Both male and female reproductive concerns are addressed as well as methodologic issues in domestic and international settings.

**EPID552**  
Epidemiology of Chronic Diseases  
Fall term(s)  
4 Credit Hour(s)  
Instructor(s): Sowers, MaryFran  
Prerequisites: EPID 601  
This course uses a data-driven approach to assess the health status of populations, with students preparing and comparing health and demographic data collected from local health jurisdictions, the state of Michigan and the U.S. as a means of learning the Epidemiology of selected chronic diseases and conditions, e.g. heart disease, diabetes, cancer, and musculoskeletal diseases. Students are teamed with local public health practitioners who help provide the context for students to develop grants applications to address those chronic diseases which have been identified through the comparative data analysis as important and for which the student has learned the underlying biology and Epidemiology

**EPID555**  
Globalization and Health  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Wilson, Mark L  
Prerequisites: Students must be admitted to the Global Health IC  
This seminar explores the diverse health impacts of economic, environmental, and cultural globalization. The transnational movement of people, technologies, capital, commodities, toxins, pathogens, ideologies and treatments are affecting people's well-being through diverse pathways. Introductory lectures and discussion of readings will explore various topics related to these issues. We will study the forces of globalization, beneficial and harmful health impacts, role in economic development and resource distribution, and implications for public health practice.
**EPID556**
Introduction to Microcomputers for Epidemiologists
Fall term(s)
1 Credit Hour(s)
Instructor(s): Staff
Introduction to computing skills for Epidemiologists: An introduction to important computer skills for Epidemiologists. Topics covered include basic SAS programming, Epi-Info, use of spreadsheets, and preparation of graphics.

**EPID560**
Mechanisms of Bacterial Pathogenesis
Fall term(s)
3 Credit Hour(s)
Instructor(s): Marrs, Carl F
Prerequisites: Grad Status and Intro Microbiology and Biochemistry or Perm. Instr.
Microbial structures and their relation to basic mechanisms of bacterial pathogenesis; structure, function, and genetics of bacterial toxins; and host resistance and immunity. Discussions of pathogenic organisms of major public health importance, diseases caused, and their epidemiology.

**EPID562**
Advanced Bacteriology Laboratory
Fall Winter Spring Summer term(s)
2-6 Credit Hour(s)
Instructor(s): Staff
Prerequisites: EPID 560 and EPID 561 or Perm. Instr.
Individual laboratory studies of selected topics on bacteria of public health importance. May be elected more than once.

**EPID565**
Research in Hospital and Molecular Epidemiology
Fall Winter Spring Summer term(s)
1-6 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Investigation of a selected problem planned and carried out by each student. Pertinent literature, investigational approaches, and progress in the investigations are discussed in seminars. May be taken more than once for up to six credits. Usually taken first for one credit. This is the Capstone Course for Hospital and Molecular Epidemiology Students.

**EPID570**
Socioeconomic Health Inequalities
Winter term(s)
3 Credit Hour(s)
Instructor(s): Lynch, John
Not offered 2005-2006
Prerequisites: Epid 503/601 and Bios 503 or Perm. Instr.

This course will familiarize students with the extensive epidemiological research and concepts that have documented and attempted to explain socioeconomic inequalities in health. Observations of socioeconomic health inequalities are one of the strongest, pervasive and most consistent findings in epidemiological research. The course will mainly focus on socioeconomic health inequalities in the US, but will also draw on evidence concerning cross-national comparisons among industrialized countries and global health inequalities more generally. The course will focus on developing an understanding of how aspects of the way we structure our socioeconomic systems affects the likelihood of exposure to positive and negative risk factors for disease over the lifecourse. Two key conceptual orientations will be presented: 1) how health inequalities develop over the lifecourse, and 2) how health inequalities are produced by multi-level genetic, biological, psychosocial, economic and other contextual factors.

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**EPID578**

Practical Projects in Epidemiology

Fall Winter Spring Spring-Summer Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

A period of elective (i.e., non-required) practical projects for international students in Epidemiology. Students work for at least eight weeks in an approved agency. Course requirements include this approved practical work experience related to the student's field of study plus prior and concurrent consultation with the student's faculty advisor. Restricted to Epidemiology majors with at least two full consecutive terms of enrollment.

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**EPID582**

Molecular Epidemiology

Winter term(s)

3 Credit Hour(s)

Instructor(s): Foxman, Betsy

Prerequisites: EPID 503 or EPID 601; and EPID 515, or equiv

The rapid development in molecular techniques since the early 1980s has enhanced the ability of epidemiologists to define and measure both exposures and outcomes. In this course, we will explore the impact of these measures on the design, conduct and analysis of epidemiologic studies by examining successful and unsuccessful applications of these new measurement tools. We will also discuss the ethical issues arising from an enhanced ability to identify individuals with early stage of disease, increased susceptibility or to measure very low levels of exposure in the environment, and sensitize students to the potential conflicts in research ethics arising from collaborative research projects.

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**EPID595**

Foundations of Dental Public Health

Fall term(s)

4 Credit Hour(s)

Instructor(s): Ismail, Amid

Basic principles in dental public health practice, including the scope of the discipline, definition of public health problems, structure and organization of the dental professions, dental education and licensure, ethical issues, demographic trends, and demand for dental care. Includes literature searching, critical appraisal, editing, referencing, use of tables and graphics. Students prepare a critical review of a topic from the dental literature. Required for all students in dental public health.
EPID601  
Principles and Methods of Epidemiology  
Fall term(s)  
5 Credit Hour(s)  
Instructor(s): Morgenstern, Hal  
Prerequisites: Previous or concurrent enrollment in Biostat 503 or equiv; PI for students in other departments  
Basic concepts, principles and methods of population-based epidemiologic research, focusing on the investigation of disease etiology and other cause-and-effect relations in public health and medicine. Emphasis is given to study design, data quality, statistical analysis, and causal inference.

EPID605  
Infectious Disease Epidemiology  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Wilson, Mark L  
Prerequisites: EPID 503 or EPID 601 and prior or concurrent enrollment in EPID 515, or equiv  
Introduction to disease and transmission characteristics, and the descriptive epidemiology of infectious agents. This course will help students to understand the theoretical basis of pathogen transmission and what factors determine patterns of disease occurrence. Students will learn how to apply this understanding to disease prevention and control.

EPID606  
Advanced Infectious Disease Epidemiology  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Koopman, James S  
Prerequisites: Epid 605  
This second course in infectious disease epidemiology will further prepare students to practice infectious disease epidemiology in health departments, NGOs, and academic settings. It addresses the processes and mechanisms which make infectious disease epidemiology differ from non-infectious disease epidemiology with regard to risk assessment and control program implementation. Focus will be on how risk factors, contact patterns, transmission dynamics, and pathogen evolution determine endemic and epidemic levels of infection. This in turn will serve as a basis upon which to discuss how a) vaccination, b) hygiene and sanitation, c) vector control, d) alteration of contact patterns, and e) treatment programs should be organized to minimize endemic and epidemic infection levels.

EPID607  
Applied Epidemiology for Public Health Practice  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Boulton, Matthew
This course will address the role of the epidemiologist in the provision of personal and preventive health services in the public health practice setting. Emphasis will be on developing an understanding of the biomedical basis and applied use of these services with particular attention to communicable disease surveillance, immunizations, and sexually transmitted disease services. The effect of changing funding streams, managed care, and the role of federal, state and local political, health, and community agencies in determining service mix and content will also be discussed. Students will have the opportunity to directly participate in service provision in their area of interest and will be expected to develop a semester project addressing a specific public health practice problem.

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**EPID609**  
Vaccines in Public Health  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Yang, Zhenhua  
Prerequisites: Epid 601 or permission of instructor  

Vaccines represent the most cost-effective medial intervention that has made a major effect on mortality reduction and population growth. This course will cover the epidemiological, statistical, biological, microbiologic, immunological principles, approaches and methods used in vaccine development and vaccination program design. Through a detailed discussion of the pathobiology, epidemiology, vaccine, and vaccination program design of a selected group of vaccine preventable diseases, the course will introduce the students to the major types of infectious diseases defined by the types of pathogens, the different transmission mechanisms of infectious diseases, the concept of population transmission dynamics, and the basic types of population effects of vaccination. Current issues and challenges in vaccine development and immunization practice will also be discussed.

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**EPID610**  
Epidemiology and Prevention of Oral Diseases  
Fall term(s)  
4 Credit Hour(s)  
Instructor(s): Taylor, George  

Philosophy, principles, and methods of study in the epidemiology of oral conditions. Includes measurement techniques, risk factor identification, and disease distribution in populations. The scientific basis for procedures and programs to prevent oral diseases is examined, with emphasis on public health applications. Includes water fluoridation, other fluoride programs, pit-and-fissure sealant, diet, nutrition, oral hygiene, chemotherapeutics, and screening programs. Required for all students in dental public health.

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**EPID611**  
Administration in Dental Public Health  
Winter term(s)  
4 Credit Hour(s)  
Instructor(s): Ismail, Amid  

The planning, operation, and evaluation of dental public health programs, including quality assurance, budgeting, and legislative issues. Students prepare a research proposal and develop skills in oral presentations. Required for all students in dental public health.

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**EPID612**  
Collection and Analysis of Dental Data
Spring term(s)
4 Credit Hour(s)
Instructor(s): Ismail, Amid
Prerequisites: EPID 610 and Biostat 503
Conduct of a dental field survey and analysis of the data collected. Includes establishment of survey aims, survey organization, examination of subjects, processing and analysis of data, preparation and submission of report. Several otherwise free days are required for the field survey, which is usually conducted outside Ann Arbor. Both custom-written data-capture software and commercial statistical software are employed. Particular attention is paid to the special problems presented by dental data in analysis and interpretation. Extensive use of microcomputers is required. Required for all students in dental public health.

**EPID613**
Problem in Dental Public Health
Fall Winter Spring Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Taylor, George and Ismail, Amid
Prerequisites: Perm. Instr.
Solutions to problems in dental public health can be pursued by students under the tutorial guidance of a faculty member. The problems can be in any aspect of research or administration. Students can also analyze data from existing research databases, and prepare reports intended for publication. Students meet regularly with the faculty supervisor to assess progress throughout the project. May be elected more than once

**EPID614**
Planning and Evaluating Field Experience in Dental Public Health
Spring-Summer term(s)
1-2 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Individual arrangements and preparation for field experience are made with the guidance of the faculty advisor. Arrangements prior to the field experience include setting objectives; selecting the field site; appropriate reading assignments; and assessment of skills and knowledge needed. After the field placement, students submit a written evaluation of the experience to the faculty advisor. The course must be elected the term immediately preceding field experience, and is required if a credit-hour reduction is requested for the field experience.

**EPID615**
 Provision and Financing of Dental Care
Fall term(s)
2 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Analysis of organizational arrangements and patterns for provision of dental care services. Methods of financing dental care. Types of dental personnel and social, economic, and political factors determining their supply and deployment. Emphasis on the United States with some reference to other countries.
EPID616
Neuroepidemiology of Aging Populations
Winter term(s)
2 Credit Hour(s)
Instructor(s): Haan, Mary
Prerequisites: Minimum: Research methods class at advanced master's level, 1 year of statistics or biostatistics. Epid 677 is recommended but not required.
This course will cover topics in neuroepidemiology as applied to aging populations, including application of epidemiologic methods and principles to common neurologic outcomes, specific outcomes such as Alzheimer's disease, Parkinson's, stroke, peripheral neuropathy, cognitive impairment, and etiology and prevention of common outcomes including current knowledge from observational and intervention studies. The use of experience with neuroimaging in population-based studies will be addressed.

EPID617
Social epidemiology II: Social and economic determinants of population health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Galea, Sandro
Not offered 2005-2006
Prerequisites: EPID 514 or permission of instructor
This course rests on the premise that the study of the determinants of health at multiple levels, and their interrelationships, is essential in order to better explain, and potentially predict, the health of populations. Although this course is grounded in an appreciation for the contribution of different disciplines to the study of population health, it focuses on the particular role that epidemiologic perspectives and methods can offer to improve our understanding of population health. As such, this course will be divided into three primary sections. The first section will consider the notion of population health, what we mean by this, and how thinking about population health challenges some of the core methods, and assumptions, of epidemiology. The second section will consider some of the key potential macro-level determinants of population health, and consider the potential role of epidemiologic methods in studying these determinants. The third section will consider epidemiologic methods, their potential, and their limitations in defining population health, understanding its determinants, and assessing the mechanisms through which these determinants influence population health. This course is a combination of didactic lectures and student discussion.

EPID620
The Epidemiology of Women's Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Sowers, MaryFran
Prerequisites: Epid 503, Epid 601 or P.I.
This course will examine sexual differences in biology and physiology as well as gender differences in social roles, occupations, and life experiences that can lead to gender differences in patterns of exposure and disease expression. This course will then consider when and how these gender differences influence the selection and implementation of epidemiologic research methods and areas in which research methods and measurement tools need development. Topics will include 1) the physiology and endocrinology of puberty, the menstrual cycle, menopause, and pregnancy; 2) physiology and endocrinology of gender differences in cardiovascular, immunological, neurological and musculoskeletal systems; 3) womens social and political role and the theory of womans double burden, occupational and economic patterns across the lifespan, health care practices across the lifespan, and social status; and 4) the impact of gender on research questions, study design, sampling approaches, recruitment and retention of study participants, questionnaire design and on research approaches.

EPID621
Cancer Epidemiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Amr, Soliman and Erdmann, Christine
Prerequisites: EPID 601 or Perm. Instr.
The course will review the socio-demographic magnitude of cancer, basic concepts of cancer biology and the causes of cancer. Methods for evaluating genetic factors, tobacco, alcohol, radiation, chemicals, pharmaceuticals, viruses and nutrition will be reviewed in lectures and by classroom discussion of selected publications.

EPID623
Nutritional Epidemiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Sowers, MaryFran
Not offered 2005-2006
Prerequisites: EPID 503, EPID 601, Biostat 503, Biostat 523
This course will include study in three major areas of nutritional epidemiology: methods of exploring nutrition-disease interrelationships, major epidemiological identified associations between nutritional status and health status, and implications for public health and public health policy in associations between nutritional status and health status.

EPID624
Readings in Epidemiology
Fall Winter Spring Summer term(s)
1-2 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Review of literature on selected subjects under guidance of individual faculty members and through scheduled seminars at which reports are presented. May be elected more than once.

EPID650
Principles and Practice of Preventive Medicine
Winter term(s)
2 Credit Hour(s)
Instructor(s): Boulton, Matthew
Prerequisites: none
This course is intended to introduce preventive medicine residents to the principles of preventive medicine and public health via a seminar approach. Individual seminars are facilitated by residency physician faculty and other invited physician faculty who provide guidance and oversight to the presenting resident for a given session. Presentations are based on peer review papers selected by the residents who also facilitate the participation of non physicians enrolled in the course. Presentations are on a broad range of topics including but not limited to emerging infectious diseases, cancer epidemiology, public health genomics, immunizations, cardiovascular disease, and emergency preparedness. Students are evaluated on appropriateness of selected papers for a given topic, presentation quality, facilitation of class discussion, preparation of pertinent questions, and class participation.

EPID650
Principles and Practice of Preventive Medicine
Winter term(s)
2 Credit Hour(s)
Instructor(s): Boulton, Matthew
Prerequisites: none
This course is intended to introduce preventive medicine residents to the principles of preventive medicine and public health via a seminar approach. Individual seminars are facilitated by residency physician faculty and other invited physician faculty who provide guidance and oversight to the presenting resident for a given session. Presentations are based on peer review papers selected by the residents who also facilitate the participation of non physicians enrolled in the course. Presentations are on a broad range of topics including but not limited to emerging infectious diseases, cancer epidemiology, public health genomics, immunizations, cardiovascular disease, and emergency preparedness. Students are evaluated on appropriateness of selected papers for a given topic, presentation quality, facilitation of class discussion, preparation of pertinent questions, and class participation.

EPID651
Epidemiology and Public Health Management of Disasters
Winter term(s)
2 Credit Hour(s)
Instructor(s): Dean, Sienko
Not offered 2005-2006
This course will offer students an overview of natural and man-made disasters as an issue in public health practice and social policy. It will use the foundation of epidemiological principles to develop skills relevant to disaster preparedness, planning, initial response and subsequent relief/recovery efforts. Issues to be examined through course activities include: the types of natural and man-made disaster events, their causes, physical and social impacts, and implications; the frequencies, magnitudes, and geographical/sociopolitical distributions of disaster events along with the epidemiology of injury and disease in the aftermath of disaster; the potential impact of disasters upon community and public health infrastructures; methods to assess risk prior to and evaluate damage following disaster events; issues and considerations in disaster preparedness; interagency roles, responsibilities and coordination in disaster preparedness and management; the man-made disaster of complex emergency, and the health of displaced populations; and issues related to potential disasters from domestic and international terrorism. The course will also discuss contemporary issues such as the recent Tsunami in the South Pacific and the emerging concern about pandemic influenza.

EPID651
Epidemiology and Public Health Management of Disasters
Winter term(s)
2 Credit Hour(s)
Instructor(s): Dean, Sienko
Not offered 2005-2006
This course will offer students an overview of natural and man-made disasters as an issue in public health practice and social policy. It will use the foundation of epidemiological principles to develop skills relevant to disaster preparedness, planning, initial response and subsequent relief/recovery efforts. Issues to be examined through course activities include: the types of natural and man-made disaster events, their causes, physical and social impacts, and implications; the frequencies, magnitudes, and geographical/sociopolitical distributions of disaster events along with the epidemiology of injury and disease in the aftermath of disaster; the potential impact of disasters upon community and public health infrastructures; methods to assess risk prior to and evaluate damage following disaster events; issues and considerations in disaster preparedness; interagency roles, responsibilities and coordination in disaster preparedness and management; the man-made disaster of complex emergency, and the health of displaced populations; and issues related to potential disasters from domestic and international terrorism. The course will also discuss contemporary issues such as the recent Tsunami in the South Pacific and the emerging concern about pandemic influenza.

EPID657
Field Internship in Epidemiology I
Winter term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: INDI, Grad Standing and Perm. Instr.
Students register for one credit hour with a faculty member who serves as the departmental internship advisor. Coursework involves identifying and applying for an internship, attending required sessions on Human Subject IRB approval processes and attending a planning session for the EPID 658 presentation to be done the following Fall Term.

EPID658
Field Internship in Epidemiology II
Fall term(s)
1 Credit Hour(s)
Instructor(s): Beebe-Dimmer, Jennifer
Prerequisites: INDI, Perm. Instr.
Presentation, analysis and discussion of student field experience in Epidemiology. Students present a
written abstract, visual presentation and oral report on an aspect of their internship experience at the
departmental poster session. Other work includes completing background and methods portions of the
data analysis project (Epid 659) to be completed in the Winter Term. In addition students must identify a
faculty advisor for EPID 659 and apply for and obtain IRB approval, if needed, for the planned data
analysis.

**EPID659**
Applications of Epidemiology
Fall Winter Spring Summer term(s)
2-4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: EPID 601, EPID 655, Perm. Instr.
Application of epidemiological methods and concepts to analysis of data from epidemiological, clinical or
laboratory studies. Introduction to independent research and scientific writing under faculty guidance.
May be elected more than once for a total credit of not more than four hours. Course must be elected for
a total of 4 credits; either elected for 2 credits each during 2 different terms or for 4 credits during a
single term. This is the Capstone Course for General Epid and International Health Students.

**EPID662**
International Health Care Systems
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff
**Not offered 2005-2006**
Prerequisites: Grad Status
This course examines the effects of government and private health services on the health status of
populations in developing countries. Other issues analyzed include the politics of health services, their
cost-effectiveness and how they are financed. Emphasis is placed on an interdisciplinary approach and on
formal techniques of analysis, including the use of some basic statistical, epidemiological, economic and
planning models. Prior election of EPID 666 is recommended.

**EPID664**
Field Methods in Epidemiology for Developing Countries
Winter term(s)
3 Credit Hour(s)
Instructor(s): Amr, Soliman
Prerequisites: Epid 503 or Epid 601
This course is developed for students and researchers interested in pursuing collaborative epidemiologic research in international settings. The course will focus on steps and procedures for setting up and conducting international epidemiologic studies. Topics will include relationship between research groups and host country policy makers and collaborators, cultural and logistical differences between research studies in the U.S. and international settings. Other topics will include developing and maintaining research infrastructure, research design, field operations, anticipated obstacles, monitoring, ethical and IRB requirement for international studies, funding, and plans for maintaining future collaborations. Occasional guest lecturers, actively involved in international epidemiologic research will be integrated into the syllabus.

**EPID665**
Research Seminar in International Health
Winter term(s)
1 Credit Hour(s)
Instructor(s): Monto, Arnold S
Prerequisites: Perm. Instr.
The seminar provides a forum for the discussion of capstone research projects in international health. Students in both the General Epidemiology and the Hospital and Molecular Epidemiology tracks of the International Health Program present their research findings. In addition, the seminar includes presentations of international health research by other speakers from the University and elsewhere.

**EPID666**
Health and Socioeconomic Development
Winter term(s)
3 Credit Hour(s)
Instructor(s): Stein, Howard
Prerequisites: Grad Status
Reviews links between health conditions and socioeconomic development in low-income countries; trends in health indicators; determinants of health, including medical services, income, education, nutrition, fertility, environmental conditions, etc; effects of health changes on the economy. Prior or concurrent election of BIOSTAT 523 or equivalent is recommended.

**EPID677**
Epidemiology of Aging
Fall term(s)
3 Credit Hour(s)
Instructor(s): Haan, Mary
Prerequisites: EPID 601 OR EPID 503, BIOSTAT 503 or 553
This course will address the epidemiology of aging from a public health perspective with a specific focus on epidemiologic methods and their application to the study of function and disease in the elderly. These will include demography, biology of aging, models of aging, functional status, genetics of longevity, cognition and dementias, social factors, sensory changes. Group projects will involve small scale data collection on elderly individuals or analysis of existing data on aging. The project will emphasize understanding of some aspect of epidemiologic methods.

**EPID680**
Hospital Epidemiology
Fall term(s)
2-3 Credit Hour(s)
Instructor(s): Yang, Zhenhua
Prerequisites: Basic Epidemiology and Microbiology and Perm. Instr.
An integration of information from basic courses allows application of microbiologic, epidemiologic and statistical principles to problems of infections in hospitals. Surveillance, investigation and control of hospital infections described.

EPID682
Current issues in Molecular Epidemiology of Infectious Diseases
Winter term(s)
1 Credit Hour(s)
Instructor(s): Foxman, Betsy
Seminar providing a forum for discussing current topics in molecular epidemiology of infectious diseases. Required for students in the interdisciplinary program in infectious diseases. This course can be taken more than once for credit.

EPID701
Fundamentals of Biostatistics
Summer term(s)
3 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
This course will provide students with some of the tools necessary to compute sample and population statistics and to make inferences using them. Some of the topics to be covered will be descriptive statistics, probability, sampling distributions, hypothesis testing, confidence intervals, correlation and simple linear regression. An emphasis will be placed on understanding the assumptions made to perform some statistical techniques and what can be done if these assumptions are violated. The course will be based on lectures, homework and reading assignments and some class exercises. Hand calculators will be required.

EPID702
Principles and Applications of Epi Info
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Introductory level courses in Biostatistics and Epidemiology and knowledge of IBM PC and Perm. Instr.
This course will focus on the use of Epi Info 2000 software for the conduct of epidemiologic studies and surveillance from the data collection stage through final data analysis. Students in the course will learn how to create questionnaires and data entry forms with built-in validity checks, enter data, merge and update data from multiple sources, perform statistical analyses and create basic graphics, and import/export data between Epi Info and other programs. Students will also be introduced to Epi Map, a Geographic Information System (GIS) module within Epi Info 2000 that can be used to spatially represent epidemiological data. Class participants will receive extensive hands-on experience by working as individuals or in groups to enter and analyze their own data. Prerequisite: Introductory-level course in epidemiology. No previous experience using Epi Info is required.
EPID703
Topics in Infectious Diseases
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr., Introductory epidemiology and microbiology.
This course will focus on current topics and new concepts in infectious disease epidemiology. We will discuss factors and issues for diseases most currently prevalent in the world, their status, epidemiology, and methods of control and prevention and barriers to their successful applications. The diseases to be discussed include but are not limited to: bioterrorism agents, HIV/AIDS, tuberculosis, vaccine preventable diseases, emerging infections such as SARS and West Nile virus, zoonoses such as ehrlichiosis and variant Creutzfeldt-Jacob disease, hospital infections and antibiotic resistance. The class format will include lectures, discussions and critical review of assigned reading material. Prerequisite: Basic knowledge of epidemiology and microbiology.

EPID704
Epidemiology, Biology, and Prevention of Cancer
Summer term(s)
1 Credit Hour(s)
Instructor(s): Schottenfeld, David
Prerequisites: Perm. Instr. and Intro level course in Epidemiology
The Epidemiology of selected cancer sites will be reviewed comprehensively, emphasizing current concept of cancer biology, established risk factors, and probable causal mechanisms. Major causal factors will be reviewed in relation to lifestyle, the workplace, medical care, and the general environment. Special topics will include how molecular epidemiological studies may incorporate biomarkers of exposures in tissues, or that determines host susceptibility.

EPID705
Epidemiology in Public Health Policy
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.; Intro Epidemiology and Microbiology
This course deals with selected applications of epidemiologic methods and findings to health-services research, population health planning and evaluation, risk assessment and health policy. The major objective is to provide a framework for integrating causal inference with decision making, thereby bridging the gap between science and practice. Emphasis is given to important conceptual and methodologic issues that confront public-health and clinical researchers, policy analysts, health planners, attorneys, and decision makers. Prerequisites: Introductory level courses in epidemiology and biostatistics.

EPID707
Nutritional Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
The overall objective of this course is to provide an understanding of the theoretical and practical considerations in the conduct of nutritional epidemiologic studies. The course will review methods for assessing dietary intake as well as cover specific studies of diet, nutrition, and chronic diseases. In addition, given the obesity epidemic and the public health importance of this nutritional disease in our society, the course will also examine epidemiologic research related to the causes, consequences, and prevention of obesity. Prerequisite: Introductory-level course in epidemiology.

**EPID709**  
Fundamentals of Epidemiology  
Summer term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Previous or concurrent course in Intro. Biostats, P.I.

The course will provide participants with an understanding of basic concepts and methods of epidemiology. The course will familiarize students with specific methods and quantitative techniques for describing patterns of disease and for elucidating disease etiology. Applications of epidemiology to certain areas of public health such as screening as an approach to disease control will be illustrated. The course will be based on lectures, discussions, assigned readings, and problem solving. Students are required to bring hand calculators to class.

**EPID711**  
Epidemiology of Injuries  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro Epidemiology and Perm. Instr.

Injuries are the leading cause of premature death and a leading cause of disability and impairment. Injuries occur in predictable patterns, and they are highly amenable to prevention and to interventions that reduce their severity. A basic understanding of the epidemiology of injuries is an important first step to successful prevention and control. This course will introduce students to the theory and methods used in injury epidemiology. The course will review the different approaches to studying injury patterns including causal mechanisms and the different phases where injuries occur and can be controlled. Specific topics include: theoretical basis of injury control research; review of available national and local data sources and their limitations; classification schemes for types and external causes of injury; measures of injury occurrences including exposure measurement, risk, and rate derivation; describing and interpreting injury data; and appropriate choice of study design and effect measures for injury studies. This course emphasizes the use of epidemiological methods and data in considering injury control options and the evaluation of the effectiveness of injury control programs. The curriculum includes lectures, discussions, practical exercises, and critical review of epidemiological literature. Students will practice prioritizing injury problems, formulating approaches for studying different injury problems, and interpreting epidemiological data pertaining to injury causation and prevention. Prerequisite: Introductory level course in epidemiology.

**EPID713**  
Epidemiology of Mental Disorders  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff
Prerequisites: Perm. Instr.

This course reviews the methodological issues and measures used in current psychiatric epidemiological research. Epidemiological findings from several areas are critically reviewed, including depression in community and primary care populations, children's mental health, stress-related disorders, dementia, schizophrenia, and substance use disorders. The findings from recent large-scale epidemiological studies of treated and untreated populations will be highlighted.

**EPID714**

Preventing the Disabling Conditions of Aging

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: Intro Epidemiology and Perm. Instr.

This course begins with a basic overview of research on the epidemiology of important clinical and social conditions that lead to disablement and death among older persons in the United States and other western countries. There will be a detailed consideration of known and putative risk factors for these conditions, examining the level of evidence and addressing newly suggested factors. Conditions that will be emphasized include general physical disability, dementia and Alzheimer's disease, osteoporosis and osteoarthritis, coronary heart disease, selected cancers, depression, elder abuse and selected common infections. Finally, each condition will be explored for its preventability using both clinical and population intervention strategies. Prerequisite: Introductory-level course in epidemiology.

**EPID716**

Clinical Epidemiology and Evidence-Based Decision Making

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: Perm. Instr.

With the increasing demand for an evidence-based approach in the delivery of health care services and the economic pressures for a more rational and efficient use of limited health care resources, practitioners and administrators in the health care field need to develop clinical measurement and evaluative skills in order to conduct their work optimally. Clinical Epidemiology and Evidence-Based Decision Making identifies and teaches these skills. The course will cover the basic concepts of clinical epidemiology in the context of appraising the recent medical literature pertaining to issues of causation, diagnosis, management, and economic evaluation. The format will include problem-based learning. Course materials will be provided in advance of the sessions, and should be reviewed before the course begins in order to obtain the maximum benefit from enrollment in the course. All health professionals (clinicians and administrators) who rely on the medical literature to guide their activities are invited to attend the course. No prerequisite.

**EPID717**

Design and Conduct of Clinical Trials

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: Intro Epidemiology and Perm. Instr
The theoretical and practical challenges to be considered in designing and conducting a clinical trial will be presented. Topics to be discussed include the specification of a primary objective, adherence to accepted ethical guidelines, the role of randomization and the means of its implementation, the choice of design strategy and design strengthening features, and the considerations involved in sample size determination and patient recruitment. Detailed analytic issues will be considered in the complementary one-week course that follows. No prerequisite.

**EPID718**  
Analysis of Clinical Trials  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro Biostatistics and Perm. Instr.  
Methods of analysis appropriate to various designs, such as cross-over designs, nested designs, factorial designs, and designs with repeated measures will be presented. The use of GLM techniques for analysis will also be illustrated. Topics will include estimation of survival functions, survival comparison between groups of subjects, identification of important covariates, adjustment for covariates, testing for interaction, and understanding the difference between confounding and interaction. Specific tools to be discussed include the Kaplan-Meier estimators, the log-rank (Mantel-Haenszel) statistics, and the Cox proportional hazards model. Instruction will focus on empirical use of methodologies rather than formal algebraic knowledge. Practical applications of manual and software-based analysis will illustrate specific procedures and interpretation of results. Students receive a disk with the data and analysis programs for all examples in the course. Students are advised to bring a scientific calculator.

**EPID719**  
Genetics in Epidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm Instr; Introductory level courses in epidemiology, biostatistics, human genetics. Completion of EPID 773.  
This course will focus on the methods used for identifying disease susceptibility genes, and evaluating their contribution to disease risk in epidemiologic research. There will be discussions relating to three broad genetic issues: 1) methods used in gene mapping, 2) data collection issues for family and population studies, 3) statistical approaches for examining familial aggregation, linkage and association. In addition, the use of biomarkers of exposure in epidemiologic research will be discussed. The course will include didactic lectures, data analysis and discussions of current literature. Prerequisites: Introductory level courses in epidemiology, biostatistics, and human genetics. Completion of EPID 773 Introduction to Genetics in Epidemiology is sufficient to meet the human genetics requirement. NOTE: There is a companion weekend course EPID 773 Introduction to Genetics in Epidemiology.

**EPID720**  
Planning, Delivery, and Evaluation of Community-Based Interventions for Behavioral and Social Change  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm. Instr.
Health-related behaviors are major contributors to risk, morbidity, and mortality for many different health problems. Effective programs designed to modify risk behaviors and promote healthier ones can have significant benefits for both individuals and communities. This course will help students apply theoretical concepts from the social and behavioral sciences, health education, and health communication to the planning, design, and evaluation of health promotion and behavior change programs. A program planning framework will be used to help students examine social and behavioral determinants of health, and to identify appropriate intervention strategies to address those factors. Examples of effective, theory-based interventions will be presented and discussed, and students will have the opportunity to apply this knowledge to their own work.

**EPID722**  
Pharmacoepidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro Epidemiology and Perm. Instr.  
The use of epidemiological methods to study the use of and effects of pharmaceuticals will be covered in this one-week course. In particular, the course will cover methods of detecting adverse and beneficial drug effects, including spontaneous reporting systems, ad hoc epidemiological studies, and the growing use of automated databases. Emphasis will be placed on the need to quantify the frequency of drug effects and risk factors for these drug effects, rather than simply documenting causation. Other topics to be covered include measuring the frequency of drug use, the quality of prescribing and very new developments in pharmacoepidemiology methods. Teaching methods will include lectures and workshops. No exam will be given. Prerequisite: Introductory level course in Epidemiology

**EPID723**  
Evaluation of Occupational and Environmental Hazards  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm. Instr.; Intro level Epid and intro to biostatistics  
This course will cover the fundamental concepts and methods used in Occupational and Environmental Epidemiology. Designs and methods for the analyses of occupational cohort mortality, nested and population based case-control, cross-sectional and longitudinal studies will be reviewed. Methodological issues such as exposure misclassification and the healthy worker survivor effect in occupational studies will be discussed. Meta-analysis and the use of risk assessment methods will also be presented. Case studies on environmental tobacco smoke, air pollution and formaldehyde exposure will be used to illustrate these issues. Prerequisite: Introductory-level course in epidemiology.

**EPID724**  
Risk Assessment in Environmental and Occupational Epidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro Epidemiology and Perm. Instr.
Risk assessment has become an essential tool in the development of policies for controlling environmental and occupational hazards, and the use of epidemiological data in risk assessment has been steadily increasing. This course will provide an overview of the current practices and controversies in risk assessment as it is practiced today, and of issues of particular concern regarding the use of epidemiology in risk assessment. Methods for using epidemiological data for identifying hazards will be reviewed including meta-analysis. Methods for developing quantitative estimates of risk by modeling epidemiological data using statistical and biologic models will also be reviewed. Class laboratory exercises will be conducted using contemporary examples where epidemiological data has played a major role in risk assessment such as: particulate air pollution and respiratory disease, electromagnetic fields (EMF) and cancer risk, and benzene and leukemia risk.

**EPID725**  
Cardiovascular Disease Epidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro Level Epid and Perm. Instr.

The course will cover a variety of topics related to coronary heart disease and stroke. It will provide students with the opportunity to study methodological issues, contemporary findings, and recommendations for future directions in cardiovascular disease Epidemiology. Students will be exposed to emerging topics in the etiology such as sub-clinical disease assessment and the role of inflammation on atherosclerosis, disease burden assessment including surveillance methods and international disease trends, intervention strategies including community level strategies, and health care issues in cardiovascular disease. The course structure will include lecture and group discussion of case studies.  
Prerequisite: Introductory level course in Epidemiology.

**EPID727**  
Reproductive and Perinatal Epidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro course in epidemiology and Perm. Instr.

Few areas of biology are as fascinating as the development of a fully formed infant from a single fertilized cell and no period of life is more crucial to long-term health. This course covers the gamut from fertility and conception to fetal development, birth defects, diseases of pregnancy, the controversial role of birth weight in survival, and the long-term effects of events during pregnancy on the risk of cancer and other adult diseases. We will explore particular methodologic problems that come with epidemiologic studies of reproduction and pregnancy. Barker's hypothesis of fetal imprinting by maternal nutrition will be reviewed and critiqued. Finally, we will consider the importance of genetics in perinatal studies, and the special role of the case-parent-triad study design. No prerequisite.

**EPID729**  
Applied Epidemiology for Health Practitioners  
Summer term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm. Instr.
The course will emphasize the practical application of the principles of applied epidemiology to the investigation of public health problems. The material will be directed toward public health practitioners whose responsibilities include epidemiological investigations of disease problems in the community as well as to others who are interested in a refresher course or entry level course in applied epidemiology. There will be presentations and discussions of applied epidemiology, field investigations, public health surveillance, methods of control and prevention, surveys and sampling, and evaluation. Participants will work on a number of case studies prepared from actual field investigations that will extend the discussion of the above subjects. This allows a practical application in the classroom of the principles of epidemiology to the solution of disease problems. Selected diseases will be discussed that will emphasize the principles of epidemiology as applied to infectious and non-infectious diseases. Students are requested to bring hand calculators to class.

EPID730
Occupational and Environmental Exposure Assessment
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro Epidemiology, P.I.
In recent years significant advances have been made in the exposure assessment methods used in epidemiologic studies of occupational and environmental hazards. These have resulted in major improvements in both validity and reliability and have increased our understanding of the impact of misclassification. This course will present an overview of the methods currently available for occupational and environmental exposure assessment in both workplace and community-based studies and provide participants with the ability to assess the strengths and limitations of different strategies. Topics will include assessing feasibility, designing an effective strategy, quantitative and semi-quantitative methods, assessing misclassification, and analysis strategies. The course will use a combination of lectures, case studies, and problem-solving exercises. Prerequisite Introductory level course in epidemiology. NOTE: It is highly recommended that students for this course also take Epid 723 Occupational and Environmental Epidemiology which is offered during the same week in the morning session.

EPID731
Sexually Transmitted Diseases: Epidemiological Principles
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Microbes, passion, power, and politics converge to create public health policy for STD and HIV. Each of these fascinating diseases brings a unique set of epidemiological features and social issues. The course will cover bacterial diseases (syphilis, gonorrhea, chlamydia), viral diseases (herpes, hepatitis B, genital warts, Kaposi sarcoma, AIDS, and cervical cancer), and syndromes caused by sexually transmitted infections (pelvic inflammatory disease and ectopic pregnancy). We will: focus on characteristics of the infections that influence their distribution and provide opportunities for public health intervention; emphasize fundamental epidemiological principles illustrated by studies of these diseases; and explore issues involved in the design and evaluation of control programs. No prerequisite.

EPID734
Epidemiology of Substance Abuse
Summer term(s)
Substance abuse is associated with death, disease and injury especially among children and young adults. This course will cover the various substances of abuse and will focus on alcohol, cocaine crack, benzodiazepines, amphetamines, marijuana and heroin. Information helpful in conducting and/or interpreting epidemiological studies of substance abuse will be presented. These include data on trends and patterns of drug use, biologic and other causal theories, Diagnostic and Statistical Manual of Mental Disorders (4th Edition), and other classification typologies, and methodological research problems unique to substance abuse. Various methods of studying substance abuse and associated morbidity and mortality and other consequences will be illustrated and examined. Epidemiological issues will be discussed including the validity and reliability of self-reported drug use, urinalysis and other means of detecting and quantifying drug use. Consequences of substance abuse presented include depression and suicide, traffic accidents and other injuries, crimes and violence, deaths, adverse pregnancy outcomes, HIV infections and other sexually transmitted diseases and the impact of substance abuse on the health care system.

EPID740
Methods in Medical Quality Assessment and Improvement

This course will focus on methods of assessing and improving the quality of medical care. Measurement is an essential component of quality improvement efforts. The course will emphasize the application of common epidemiological tools and methods, and explore the use of other techniques including survey methodologies, quality improvement techniques, and methods for evaluating cost.

EPID741
Epidemiology Measures

The features and pitfalls of using rates, odd ratios, rate ratios, probabilities and probability ratios are described in biostatistical terms producing an in-depth understanding of these fundamental epidemiologic tools for measuring association. The companion concepts of interaction (effect-modification) and confounding bias are also presented to identify important issues in drawing conclusion from these statistical measures. Once the properties of these summary statistics are established, such topics as combining data, analysis of trends, transformations and smoothing techniques are presented to illustrate the process of measuring associations in collected data. Rigorous and detailed explanations combined with applied illustrations are intended to improve the application of statistical measures to the analysis of epidemiologic data. Prerequisites: Introductory level courses in epidemiology and biostatistics.

EPID742
Introduction to Logistic and Poisson Models
EPID743
Analysis of Epidemiological Data: An Applied Approach
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro Epidemiology and Biostatistics and Perm. Instr

A series of data sets drawn primarily from the epidemiological literature will provide the basis for a
workshop discussing a variety of biostatistical issues and methods. Such techniques as logistic
regression, Poisson regression, matched data analysis, nonparametric regression, log-linear analysis and
survival analysis will be illustrated and explored from the perspective of application with a focus on
description, interpretation and presentation of results. Particular emphasis will be place on using modern
graphic and computer intensive analytic tools. The course is designed to allow rather theoretically
complex statistical methods to be presented in a context accessible to students with limited statistical
background (e.g., one-year course).

EPID745
Epidemiological Issues in Women's Health
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr., Introductory epidemiology

Did you know that compared to men, women are three times more likely to develop an autoimmune
disease, die from cardiovascular disease in greater numbers, and have different responses to
pharmaceuticals? While much is known about certain diseases affecting women, such as osteoporosis and
breast cancer, there is a lack of research in many other areas. A relatively new research area,
genre-based medicine, is gaining more attention. It is becoming clear that women have unique health
needs and that what is known about men's health cannot simply be translated into women's health. In this
course, we will examine these differences to help us gain a more complete picture of how a
genre-based approach can have strong implications for the way that diseases are prevented, diagnosed,
and treated.

EPID747
Successful Scientific Writing
EPID749
Applied Computing in Epidemiologic Research
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro Epidemiology and Biostatistics, Perm. Instr.
The overall objective of this course is to have students develop skills to improve their use of computers in epidemiologic research. A number of case studies are used to step through the process of performing simple descriptive analyses to more complicated multivariable analyses. An important aspect of this process includes how to perform certain epidemiologic and statistical analyses using software and, just as important, how to interpret the output. Programs such as Epi Info, SAS, SPSS, OpenEpi, and others will be presented. Epidemiologic analyses, such as stratification, logistic regression, and survival analysis, are described. The important issues of assessing and dealing with effect modification and confounding are emphasized. Some basic programming in Epi Info and SAS will be presented. Prerequisites: Introductory-level courses in epidemiology and biostatistics. Experience with the use of statistical software is desirable.

EPID750
Cancer Epidemiology: Assigning Priorities in Cancer Prevention and Control
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro Epidemiology and Perm. Instr.
This course will review advances in cancer epidemiology that illuminate understanding of causal mechanisms and the basis for cancer control interventions. The syllabus will include lectures on the global burden of cancer, molecular basis of cancer, tobacco and alcohol as risk factors, hormones and breast and endometrial cancers, obesity and cancer mortality, epidemiology and prevention of prostate cancer, and genetic modifiers of risk.

EPID751
Cancer Prevention
Summer term(s)
1 Credit Hour(s)
Instructor(s): Schottenfeld, David
Prerequisites: Intro level Epid and Perm. Instr.
The principal focus of this course is the assessment of cancer prevention strategies. We will initially review theories and evidence supporting the notion that cancer is largely preventable. Important concepts in this review include the understanding of cancer as a decades-long process rather than a discrete event, the implications of geographic variations in cancer occurrence, and the potential roles of behavior change, pharmacological (chemopreventive) therapy, screening, and regulatory processes as approaches to cancer prevention. We next will explore the scientific, economic, and ethical considerations that go into formulation of clinical and public policies directed toward cancer prevention. The remainder of the course will entail an examination of preventive approaches to specific cancers, including those of the uterine cervix, lung, colorectal, breast, and prostate. We will focus on the scientific evidence supporting the effectiveness of early detection, chemoprevention, behavioral change, and regulatory policy for each of these cancers and will examine the statements and actions of governmental and private organizations in the light of this evidence. Prerequisite: Introductory level course in Epidemiology.

EPID752
Epidemiology and Prevention of Violence
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Violence-related injury is a leading cause of morbidity and mortality around the world. Using a public health perspective, this course will explore the epidemiological, etiological, and programmatic landscape of violence-related injury in its prevention. Students will learn about: 1) how to find and interpret relevant epidemiologic information, 2) theories and evidence regarding causes of violent behavior, 3) leading evidence-based strategies for preventing violent behavior, and 4) strategies to implement, evaluate, and maintain programs to prevent violent behavior. No prerequisite.

EPID753
Ethics, Law, and Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
This course focuses on an examination of issues arising at the juncture of law, epidemiology, and ethics, such as informed consent, the assessment of risks and benefits, conflict of interest, and scientific misconduct. The relationship between ethical principles and study design is explored. The development and functions of various types of oversight and monitoring committees are also addressed. Class discussion draws on both international documents and national documents. To the extent possible, the class will utilize a case-focused approach. Prerequisites: Course or equivalent in epidemiological methods

EPID754
Design and Evaluation of Injury Prevention Programs
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
This course will provide students with an opportunity to develop basic skills necessary for the design, implementation and evaluation of prevention programs. Although examples used throughout the course will be drawn from the field of injury prevention, most concepts are also directly applicable to intervention development in other areas of public health. Using a problem-solving framework, students will be introduced to problem identification, definition, and measurement; identification of key determinants and of modifiable casual factors; identification of possible intervention strategies; selection of an intervention strategy; and integrated implementation and evaluation planning. The contest focus will be on developing prevention programs in a way that optimizes limited resources while achieving the maximum likelihood of success. Special attention will be given to assessing the social and environmental factors that impact the development, delivery, and outcomes of interventions. The educational focus will be on practical skill building. The class will be interactive, and students are encouraged to bring real-world injury prevention problems or success stories to contribute to class discussions and group exercises. Strongly recommended prerequisite: Previous or concurrent course in epidemiology.

**EPID756**

Epidemiology and the Law

Summer term(s)

1 Credit Hour(s)

Instructor(s): Peyser, Patricia A

Prerequisites: Perm. Instr.

Increasingly, epidemiological studies are offered as evidence or as a foundation for expert testimony in criminal, civil, and administrative proceedings. Presently, courts and administrative agencies are implementing the guidelines set forth by the U.S. Supreme Court in Daubert, a landmark 1993 case that established new standards for the admission of scientific evidence. Daubert emphasized that to be legally reliable, scientific evidence must be scientifically valid. This course reviews evidentiary standards focusing on the tests that should be applied to epidemiological studies to assess their scientific validity. The Federal Rules of Evidence will be the primary legal standards discussed. Recent court decisions interpreting these rules will be reviewed. Scientific writing describing how to assess study designs, data, methods, and reporting of findings will also be reviewed. The application of legal and scientific standards will be illustrated through simulations presenting realistic situations for class discussion. The course is intended for judges, lawyers, regulators, witnesses, students of law and epidemiology, and practicing epidemiologists interested in legal issues.

**EPID757**

Introduction to Systematic Reviews and Meta-analysis

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: Intro Epidemiology and Biostatistics and Perm. Instr.
In the last several years, there has been an explosion in the number of published meta-analyses in the biomedical literature. Although controversy exists about the relative merits of the technique of meta-analysis (compared to results obtained through single trials or through qualitative reviews), the widespread and growing application of meta-analyses to address important research questions, makes it useful for health professionals to be able to understand and critique this research design. This one-week course will provide a detailed examination of the strengths and limitations of the technique as well as intensive introduction into the design and execution of a meta-analysis. Specific topics to be covered (and emphasized through numerous examples from the medical literature) include: *identification of research questions appropriate for meta-analysis; *systematic abstraction and quality scoring of data from research articles; *a critique of the performance of meta-analysis contrasted with conclusions from clinical trials; selection of a proper statistical model in meta-analysis, including computer-based problem sets with practical examples of fixed and random effects models; the use of meta-regression to evaluate heterogeneity; *graphical and tabular templates for the presentation of data from a meta-analysis

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**EPID759**  
Introduction to SAS  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Intro. Epidemiology and Biostatistics and Perm. Instr  
This course will present SAS at an introductory level for public health professionals. The overall objective of the course is to enable students to develop the ability to use SAS for basic statistical analyses, and to prepare for more advanced uses of SAS. Students in the course will learn how to navigate SAS in the Windows environment, create and submit command files, print output, do simple troubleshooting, create and manipulate SAS data sets, recode and transform variables, and do simple statistical analyses using SAS. Data management tasks, such as merging data sets to add variables, and adding cases to a data set will also be covered, as will information on how to import/export data between SAS and other programs, such as Excel, dBase, SPSS, and Epi Info. SAS/INSIGHT will be introduced for examining the distributions of variables and checking statistical assumption, using interactive graphics. The class will be taught as a lab, with lectures and demonstrations.

**EPID760**  
Economic Measures of the Effectiveness of Health Care Services  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm. Instr.  
This course will introduce students to tools of economic evaluation and demonstrate how these tools can be used in the health care arena. Specifically, students will learn the mechanics of cost minimization, cost effectiveness, and cost utility analyses. Major foci of the class will be on how to frame studies and on the different ways to define and measure health outcomes, particularly quality adjusted life years (QALYs). The class format will be lectures, supplemented by discussion of case studies from the literature.

**EPID761**  
Perspectives in Social Epidemiology  
Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff
There are few arenas of epidemiologic inquiry which do not bear the imprint of societal and psychosocial processes. This course will provide an introduction to some of the core theories, concepts, methods, and findings in the social epidemiologic investigation of health and diseases. Using a combination of lectures, in-class exercises and discussions, we will focus on describing and understanding the associations between social class, race and ethnicity, psychosocial factors, neighborhood characteristics and lifecourse processes to the incidence and progression of various health outcomes. Our approach will include a discussion of both upstream and downstream factors, covering both policy and intervention issues as well as the more proximal behavioral and biological mechanisms which link social and psychosocial factors to health outcomes. Prerequisite: Introductory-level course in epidemiology.

EPID762
Complex Sample Surveys Data Analysis with SUDAAN
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intermediate Biostat, Introductory Epid, Statistical package experience, prefer (SAS)
Do you need to analyze data from complex health sample surveys such as NHANES, NHIS, BRFSS, YRBS, or PRAMS? Do you need to learn how to use specialized statistical methods and software so you can obtain correct point estimates, confidence intervals and tests of significance for sample survey data analyses? Do you need to compare or combine sample surveys over time? If yes, then this course is for you! Participants use the comprehensive sample survey software SUDAAN Release 9 for descriptive and design based modeling analyses of sample survey data. SUDAAN offers several variance estimation options: Taylor Series linearization and replication techniques ( balanced repeated replication [BRR] and jackknife). The SUDAAN procedures DESCRIPT, CROSSTAB, RATIO, REGRESS (linear regression) and LOGISTIC (logistic regression) are used for descriptive, comparative and design based modeling analyses. Marginal prediction options are illustrated for logistic regression. Participants analyze the sample survey datasets NHANES-III, NHANES 1999-2002, and NHIS. SUDAAN design syntax for other sample surveys (e.g. BRFSS, PRAMS, and YRBS) is illustrated so that participants can use their SUDAAN skills for other sample survey datasets. Handouts include copies of Power Point slides for the course content, annotated example analyses with SUDAAN, structured lab exercises using SUDAAN, answers to lab exercises, recently published articles by the instructor on sample survey data analysis, and a bibliography. Handouts serve as useful reference material when participants conduct future analyses with SUDAAN. Prerequisites: Intermediate biostatistics, basic epidemiology, experience with at least one statistical software package, and basic knowledge of SAS. Background in the theory and/or practice of sample surveys (e.g. EPID 764) is helpful but not mandatory. Bring a zip disk (100 or 250 MB) or a memory stick 1 to store your data files and lab work for the course.

EPID763
Integration of Biomarkers in Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro Epidemiology and Biostatistics and Perm. Instr
Topics to be covered include study design considerations, the types of samples that can be collected and how they can be used (e.g., urine or blood; use of a biomarker as the exposure or as the endpoint), sample collection and storage, both sources and evaluation of laboratory variability, dealing with batch-to-batch variability in the data, and ethical issues in the use of biomarkers.
EPID764
Probability Sampling Techniques in Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intro level Epid and Biostat, P.I.

Do you need to design/select probability samples for epidemiological studies? Do you need to hire/monitor a contractor who designs/selects probability samples for you? Do you need to write/critique proposals or literature that include simple or complex sampling methodology? Do you need to understand sampling plan details of public release sample survey documentation? Have you missed formal training or mentored experience in practical sampling methods? If yes, then this course is for you! Course participants learn the operational procedures, advantages, disadvantages, and cost implications of: (1) simple random sampling, (2) stratified random sampling, (3) multi-stage cluster sampling, (4) random digit dialing (RDD), and (5) area probability sampling (sometimes referred to as household sampling). Prototype sampling plans are illustrated with BRFSS, YRBS, NHIS, NHANES-III, continuing NHANES, PRAMS and others. Participants learn how to define survey response rates, including the recent recommendations on this topic from AAPOR. Participants learn the general strategy in weighting sample survey data, including nonresponse adjustments, poststratification and trimming. Probability sampling procedures recently added to SAS (SURVEYSELECT) and SPSS (CSPLAN and CSSELECT) are reviewed and illustrated. Course participants design probability samples of dialysis patients in the U.S., using each of the sampling techniques discussed in the course. This course does not include procedures for analysis of complex sample survey data; see EPID 762 and EPID 765 offered in GSS 2005 for this topic. Prerequisites: Introductory-level courses in biostatistics and epidemiology. Basic knowledge of either SAS or SPSS is helpful, but not required.

EPID765
Analyzing Complex Sample Surveys: SPSS and STATA Procedures
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Intermediate Biostat, Introductory Epid, Statistical package experience
Do you need to analyze data from complex health sample surveys such as NHANES, NHIS, NHSDA, BRFSS, YRBS, or PRAMS? Do you need to learn how to use specialized sample survey methods and software so you can obtain correct point estimates, confidence intervals and tests of significance for sample survey data? Do you need to compare or combine sample surveys over time? If yes, then this course is for you! Participants will use SPSS and STATA, general statistical software packages, for descriptive and modeling analyses of sample survey data. STATA has comprehensive sample survey analysis capability, and SPSS released its first sample survey procedures in late 2003 as an add-on module for Version 12. SPSS sample survey descriptive and analytical procedures include CSDESCRIPTIVES and CSTABULATE. STATA descriptive and design based modeling commands include: svyset, svydes, svymean, svyprop, svytotal, svyratio, svytab, lincom, nlcem, testnl, svylogit (logistic regression), and syregress (linear regression). The basics of navigating STATA are reviewed for those who have not used STATA previously. Participants analyze the NHANES-III and NHIS sample survey datasets. SPSS and STATA syntax for other sample surveys (BRFSS, PRAMS, YRBS, etc.) is explained so that participants can use their SPSS and STATA skills for other sample survey datasets. Handouts include copies of Power Point slides for the course content, annotated example analyses with SPSS and STATA, structured lab exercises, answers to lab exercises, recently published articles by the instructor on sample survey data analysis, and a bibliography. Handouts serve as useful reference material when participants conduct future sample survey analyses with SPSS or STATA. Prerequisites: Intermediate biostatistics, basic epidemiology, experience with at least one statistical software package, and basic knowledge of SPSS. Experience with STATA is not necessary. Bring a zip disk (100 or 250 MB) or a memory stick 1 to store your data files and lab work for the course.

**EPID766**

Analysis of Longitudinal Data from Epidemiologic Studies

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: Intro. Level Epid and Biostat, P.I.

It has been popular in epidemiology to conduct longitudinal studies where study participants are followed over time and repeated measurements of interest are obtained. Compared to traditional cross-sectional or case-control studies, longitudinal studies can be more efficient to detect difference of interest, offer more evidence for possible causal inference, etc. However, longitudinal data are likely to be correlated, which presents substantial challenge in analyzing such data. This course will address 1) epidemiologic methods for the design and interpretation of longitudinal studies involving repeated measures and 2) statistical methods appropriate for longitudinal data including generalized estimating equations (GEEs), linear mixed models and generalized linear mixed models. A series of studies will be used to illustrate the major design issues and statistical approaches. Relevant procedures in statistical package SAS will be introduced and appropriate interpretation of results will be emphasized. Prerequisite: Introductory level courses in epidemiology and biostatistics and courses in linear regression and logistic regression.

**EPID767**

The Law and Public Health Practices

Summer term(s)

1 Credit Hour(s)

Instructor(s): Staff

Prerequisites: P.I.
Health-related behaviors are major contributors to risk, morbidity, and mortality for many different health problems. Effective programs designed to modify risk behaviors and promote healthier ones can have significant benefits for both individuals and communities. This course will help students apply theoretical concepts from the social and behavioral sciences, health education, and health communication to the planning, design, and evaluation of health promotion and behavior change programs. A program framework will be used to help students examine social behavioral determinants of health, and to identify appropriate intervention strategies to address those factors. Examples of effective, theory-based interventions will be presented and discussed, and students will have the opportunity to apply this knowledge to their own work. No Prerequisite.

EPID768
Global Health Issues and Dynamics
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
Among the people of the world, there is dramatic diversity in living conditions and profiles of health and disease associated with social class, income, ethnicity, gender, age and geographic location. It is essential for the health professional and community leaders to be aware of the health conditions in the various countries of the world and the relationship of these conditions to social, economic and political trends. Many of the worlds developing countries are plagued by unemployment, poor housing, low education, high infant mortality, malnutrition, communicable and parasitic diseases, and disability due to injury and occupational hazards. Developed countries also face some of these problems, as well as worldwide issues like emerging diseases, violence, bio-terrorism and drug trafficking. All countries must pay considerable attention to international influences on the health of their own, and the world's citizens. The Institute of Medicine (IOM), in a recent publication: "U.S. vital Interests in Global Health", defines GLOBAL HEALTH as the "Health problems, issues, and concerns that transcend national boundaries, and may best be addressed by cooperative actions". (See this publication at: http://www2.nas.edu/iom) In this course we define GLOBAL HEALTH as "the analysis of the existing diversity and trends in the health and living conditions of people and nations, including the political and socioeconomic forces that influence them and the use of this knowledge for the solution of the identified problems". We will review the present knowledge and approaches to these issues through presentations, videotapes and special exercises.

EPID770
Environmental Determinants of Infectious Diseases
Summer term(s)
1 Credit Hour(s)
Instructor(s): Wilson, Mark L
This course will explore the diverse associations and processes underlying broad range of environmental influences that affect the transmission of infectious disease agents. The fundamental mechanisms of transport and colonization will be addressed in their ecological and evolutionary contexts. Various anthropogenic and zoonotic diseases in the U.S. and abroad will be compared by considering how different environmental factors shape their distributions, maintenance, intensity and epidemic potential. The role of ecological changes such as dams, irrigation, agricultural intensification, urbanization, deforestation and reforestation will be considered for a variety of water-, vector-, and airborne diseases. Possible effects of global climate change and species introductions on these infectious diseases, as well as new analytical tools for their study, also will be explored. No Prerequisites.
Introduction to Evaluation Research
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: P.I.
This short course provides an introduction to the fundamentals of evaluation research as applied to public health programs and policies. The course covers impact, outcome, process and participatory evaluation, and a number of research designs common in public health evaluation research. The course also discusses strategies for planning an evaluation and working with stakeholders, as well as ethical issues common to evaluation research. Class format includes lecture, class discussion and small group exercises.

EPID775
Public Health Informatics
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Familiarity with the use of personal computers and experience using at least one public health data system, P.I.
This course is an introduction to the field of public health informatics, the systematic application of information and computer science and technology to public health practices and research. Students will learn practical principles and techniques enabling them to become effective managers of information systems development projects and serve as high-level advisors to policy makers and scientist at federal, state and local health agencies regarding the acquisition, development, and management of integrated, enterprise-wide public health information systems. Topics include information architecture, database design, networks, data standards, privacy, confidentiality, security, managing information technology people and projects, information resource management, avoiding information system disasters, and effective internet use. Prerequisites: Familiarity with the use of personal computers, and experience using at least one public health data system. Prior work in a public health agency helpful. No previous computer science or programming training required.

EPID776
Bioterrorism and Other Weapons of Mass Destruction; How Can Public Health Respond to the Threat?
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Instr.
This course will focus mainly on bioterrorism but will also include discussions of other weapons of mass destruction (chemical and radiological). Initial lectures will cover descriptions of biological, chemical, and radiologic weapons and the dangers they pose. Questions to be considered include: Why would anyone use these weapons? Who would use them? How easy is it to access or produce these weapons? Subsequent lectures will focus on how localities, states and the federal government are preparing for the inevitable use of these weapons. Questions to be considered in these lectures include: Are we currently prepared for weapons of mass destruction events? Can we ever prepare adequately for these events? How must preparation for biological events differ from preparations for chem/rad events? The course will conclude with a discussion of future research aimed at detecting biological agents and treating victims of biological attacks. No prerequisite.
EPID777
Geographic Information Systems for Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Geographic Information Systems (GIS) are used for analyzing and displaying spatial data. Data from a variety of sources may be compared with overlay analysis and spatial statistics. Modern tools permit novice GIS users to perform advanced spatial analysis without extensive training. This course will introduce students to ArcView, the world's leading GIS analysis package. Examples of epidemiological applications will give students the opportunity to see and use this powerful tool. Some of the topics to be covered are data import/export, layering, table management, classification, labeling, spatial and attribute queries, buffering, and address geocoding. No prerequisite.

EPID780
Causal Inference and Causal Regression Models in Epidemiology
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Introductory-level courses in epidemiology and biostatistics.
The course will serve as a relatively gentle introduction to issues regarding estimation of causal effects, with emphasis on observational data. Much of the course will concentrate on defining rigorously a causal effect and the minimal conditions necessary to consistently estimate such effects. We will discuss different parameters of interest (total effects, direct effects, etc.) as well as techniques used to estimate such parameters. Specific topics to be discussed include confounding, counterfactuals, causal effects, statistical and graphical models, the G-computation algorithm and marginal structural models. Although the material is challenging, the course is designed for students with limited statistical background.
Prerequisites: Introductory-level courses in epidemiology and biostatistics.

EPID781
Molecular Epidemiology of Cancer
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Introductory-level course in epidemiology.
The objectives of this course are a) to introduce students to basic concepts in molecular epidemiology of cancer, design considerations for gene-environmental interaction; and statistical methods, b) to discuss practical issues such as biologic specimen collection, transportation, processing and banking, c) to review the measurements and methodological issues of three major biological markers including exposure marker, susceptibility markers, and earlier biological response markers, and d) to review current molecular epidemiologic research of cancer in medical and epidemiological literature. Prerequisite: Introductory-level course in epidemiology.

EPID782
Introduction to Deductive and Probability Logic for Epidemiologists
Summer term(s)
1 Credit Hour(s)
Instructor(s): Staff
This course provides basic training in deductive and probability logic, core skills for the practicing epidemiologist. In deductive logic, we see how even simple relations such as negation and disjunction can be mishandled in epidemiologic discourse. Using truth tables, we distinguish valid arguments from fallacious ones. We dwell on the fallacy of affirming the consequent, endemic in epidemiology. After reviewing subjective and objective interpretations of probability, we apply the rules of probability logic in screening and other epidemiologic problem settings, Bayess theorem playing its central role. Fallacies again receive special attention, particularly the prosecutors fallacy, the root cause of misinterpretations of P-values and confidence intervals. We discuss attitudes toward uncertainty and review ways of communicating probabilistic information to consumers of epidemiologic research. Time permitting, we enroll ourselves into a mock clinical trial to deepen our appreciation of the role of chance in epidemiologic results.

EPID801
Topics in Epidemiologic Analysis
Winter term(s)
3 Credit Hour(s)
Instructor(s): Koopman, James S
Prerequisites: EPID 655, Biostat 560 or equiv.
Small group seminars on topics relevant to design of a Ph.D. thesis in General Epidemiology: philosophical basis for formulation of epidemiologic questions, quantitative basis for design of studies and interpretation of results, models used for prediction of effects, models used for causal analyses, measures of causal effect, systems behavior effects, assessment of confounding, assessment of effect modification, causal interactions, measurement and misclassification errors in different types of studies, selection biases in different types of studies and power to achieve epidemiologic goals.

EPID802
Computer Simulation of Epidemiologic Processes
Fall term(s)
3 Credit Hour(s)
Instructor(s): Koopman, James S
Prerequisites: EPID 503 or EPID 601 or equiv and Perm. Instr.
This course deals with dynamics of disease in populations. The student learns how to construct simulations of disease processes in populations using deterministic, continuous state space, computer simulation software. Using these simulations the student learns how the parameters of causal models relate to epidemiological parameters and the statistics that are commonly calculated from epidemiological data. The simulation capabilities acquired are intended to improve the students ability to develop and evaluate causal models and explore the consequences of specific theories. Temporal and exposure group patterns in non-communicable disease are emphasized. An introduction to communicable disease transmission system analysis is also presented.

EPID803
Topics in Social Epidemiology and Population Health
Fall Winter term(s)
2 Credit Hour(s)
Instructor(s): Kaplan, George
Not offered 2005-2006
This is a proseminar designed for doctoral students from public health and other fields who are interested in social epidemiology. It is open to doctoral students in Epidemiology, other SPH departments, and other units in that order of priority. Enrollment will be limited to 20. Permission of instructor is required to enroll. The course focuses on a rotating selection of topics, with a different selection each year. The focus is on building bridges between biological and social approaches. Topics include, but are not limited to: socioeconomic status and health; community structure and function and health outcomes; life-course approaches to chronic disease; psychosocial factors in cardiovascular disease and cancer; the social epidemiology of the epidemiologic transition; gender, race and class; impact of catastrophic events on the health status of individuals and populations; social factors in aging and disability transitions; religion, spirituality and health; biological mechanisms underlying psychosocial associations with health outcomes; psychosocial factors in infectious disease; globalization and health, measurement of health inequalities, and issues given an expanded definition of social epidemiology. The course is taught as a seminar and includes substantial readings, student presentations, and visiting speakers. Evaluation is based on class participation, including presentations.

EPID804
Population Health and its Determinants
Fall term(s)
2-3 Credit Hour(s)
Instructor(s): Williams, David and House, Jim
Prerequisites: permission of instructor
This seminar, involving considerable reading, will introduce students to the emerging area of scholarship and research on the determinants of Population Health and its trends. The focus will be on patterns of health in populations seen from the integration of core findings on inequalities in health, race/ethnicity, community and spatial aspects of health, behavioral and psychosocial factors, lifecourse perspectives, stress biology, and policy/intervention. Thus the seminar will concentrate on multi-level approaches to important health issues. The course is open by permission of the instructors to participants in the Health and Society Scholars program, and advanced doctoral students in public health and other fields.

EPID810
Epidemiologic Methods for Longitudinal Studies
Winter term(s)
4 Credit Hour(s)
Instructor(s): Harlow, Sioban
Not offered 2005-2006
Prerequisites: EPID 655, Biostat 560 or Perm. Instr.
This course will address 1) epidemiologic methods for the design and interpretation of longitudinal studies involving repeated measures; 2) field problems and measurement issues unique to longitudinal studies; and 3) statistical methods appropriate for longitudinal data including robust variance estimation, growth curve models and random effects models, and transitional models. A series of case studies will be used to illustrate the major design issues and statistical approaches.

EPID811
Critical Appraisal of Epidemiologic Studies
Fall term(s)
2 Credit Hour(s)
Instructor(s): Schottenfeld, David and Foxman, Betsy
Prerequisites: Doctoral standing or Perm. Instr.
This course will act as the introductory epidemiologic course for doctoral students enrolling in the epidemiology program at SPH. The course will provide a unifying examination of epidemiological constructs and their application to the critical evaluation of the literature. Topics will include: Importance of causal relationships; study designs that can demonstrate and test causation; interpretation of results from causation; selection of study subjects; error and bias in observation; confounding and chance variation; combination of results from several studies using several methodologies.

**EPID812**  
Critical Appraisal of Pathobiology  
Fall term(s)  
2 Credit Hour(s)  
Instructor(s): Sowers, MaryFran  
Prerequisites: Grad Standing & Perm. Instr  
This course is for doctoral students in the Epidemiology department that are preparing for the Preliminary Examination. This course will integrate basic concepts of disease mechanisms with the biology and epidemiology of representative human diseases. Students will be required to give a presentation on a selected disease and discuss what is known of the pathogenesis of disease as well as how epidemiologic students inform pathogenesis and how knowledge of pathogenesis informs epidemiologic studies.

**EPID814**  
Topics in epidemiologic analysis  
Fall term(s)  
2-1 Credit Hour(s)  
Instructor(s): Diez-Roux, Ana  
Prerequisites: EPID601 BIOS560  
This pilot course will focus on selected theoretical and methodologic issues related to the analysis of epidemiologic data with the purpose of drawing causal inference. The topics covered will include long-standing fundamental issues as well as new techniques or novel epidemiologic applications of methods used in other disciplines. The course will consist of 14 two-hour sessions. Each session will include a brief didactic presentation of the key issues for the session by the instructor followed by a structured small group and class discussion of a selected reading or readings.

**EPID815**  
Research Seminar on AIDS and Sexually Transmitted Infections  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Ford, Kathleen  
Not offered 2005-2006  
Prerequisites: 1 semester epidemiology, Biostatistics 560, some knowledge of STIs, and permission of instructor.  
This pilot course will focus on theoretical and methodological issues in the design and conduct of research on AIDS and sexually transmitted diseases. The topics covered will include issues on collecting sensitive data, working with stigmatized groups, designing studies in clinical and community settings, collecting data on networks, and estimating the demographic impact of the AIDS epidemic.

**EPID816**  
Tuberculosis: Pathogen, Host and Environment
Fall term(s)
2 Credit Hour(s)
Instructor(s): Yang, Zhenhua

**Not offered 2005-2006**

Prerequisites: EPID 605, 609 617 or any other infectious disease course.

Tuberculosis remains one of the deadliest diseases in the world. Social and operational factors, the growing AIDS epidemic, and increasing drug resistance have dramatically compounded the tuberculosis crisis. This course will review the history, epidemiology, biology, pathogenesis, and clinical management of tuberculosis. It will examine the current issues related to tuberculosis and discuss the complex mechanisms that contribute to the almost unparalleled impact of tuberculosis on global health in the past and present time, including the impact of the emergence of AIDS epidemics. Each session will include a one-hour didactic presentation of the specific topic for the session by the instructor followed by a structured class discussion of reading(s) relevant to the session-specific topics that address emerging methods. In the last session, the students will be asked to present their research proposals on an infectious disease of their primary interests using the concepts and methods learned in this class. While the focus of the lectures will be centered on tuberculosis, the discussions will address the application of general concepts in infectious disease.

**EPID817**
Advanced Genomic Epidemiology
Winter term(s)
3 Credit Hour(s)
Instructor(s): Kardia, Sharon
Prerequisites: BIOSTAT 560 EPID 515 or equivalent

This course provides a depth of experience in advanced genomic epidemiology methods. The focus will be on developing and implementing high throughput analyses of single nucleotide polymorphisms and their association with disease. Analytical methods such as linkage disequilibrium testing, haplotype estimation, gene-environment interactions, gene-gene interactions, classification trees, and neural networks will be reviewed and then applied to a real dataset. We will also review and apply the many bioinformatic resources available from the National Center for Biotechnology and Information (NCBI) to provide a biological context to the analysis and facilitate interpretation of genomic epidemiological association studies. Emphasis will also be placed on issues of statistical hypothesis testing such as the multiple testing (e.g. adjusting p-values using false discovery rate methods and permutation methods) and will learn techniques for performing cross-validation. Students will get hands on experience with creating analysis plans, performing data analysis, and interpreting genomic association results.

**EPID840**
Current Issues in Oral Epidemiology
Fall term(s)
2 Credit Hour(s)
Instructor(s): Ismail, Amid and Taylor, George

Seminar for the detailed examination of current knowledge, etiologies, risk factors, methods of measurement, data collection procedures, quality of existing data, and further research needs in the epidemiology of oral conditions. Required for doctoral students in oral epidemiology.

**EPID841**
Research in Dental Public Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Eklund, Stephen A
Identification of problems in dental public health and development of research strategies to address them. Various research designs and their application in dental services research, program evaluation, testing of treatment procedures, behavioral studies, and clinical trials, as well as epidemiology of oral conditions. Funding sources, political aspects of research, procedures for acquisition and management of research funds. Required for doctoral students in dental public health.

**EPID850**
Psychosocial Factors in Mental Health and Illness(Soc 850/Psych 890)
Fall Winter term(s)
2 Credit Hour(s)
Instructor(s): Neighbors, Harold
Prerequisites: Perm. Instr.
Selected advanced topics including problems of diagnosing psychopathology through community surveys, psychosocial predictors of mental illness, primary prevention and coping with undesirable life events. This seminar meets in conjunction with a training program, National Institute of Mental Health. May be elected more than once. (Follows in sequence with Soc 850/Psych 890; Soc 851/Psych 891; Soc 852/Psych 892; Soc 853/Psych 893.)

**EPID870**
Data Analysis Using R
Winter term(s)
2 Credit Hour(s)
Instructor(s): Erdmann, Christine
Prerequisites: EPID601; BIOSTAT560 or concurrent enrollment; or permission of the instructor
This is a one-semester introduction to the R statistical programming language for data analysis. R is a freely available, multi-platform (Windows, Linux, Unix, Mac OS), versatile, and powerful program for statistical computing and graphics (http://www.r-project.org). This course will focus on core basics of organizing, managing, and manipulating data; introduction to R programming; and basic R graphics. The material will be taught in the context of reviewing a number of statistical methods, including descriptive methods and linear models. Other techniques particularly suited to R will be introduced, including graphing, regression model diagnostics, and simulation techniques. The overall goal of the course is to provide students with a set of new and advanced data analysis tools.

**EPID880**
The Epidemiological Links between Infection and Chronic Disease
Winter term(s)
3 Credit Hour(s)
Instructor(s): Aiello, Allison
Prerequisites: EPID 658 and EPID 605, 607, 609
Exploring the Link between Infection and Chronic Disease: Research Challenges and Pathways

As early as the mid 19th century, researchers were exploring the idea that chronic conditions, such as cancer, were caused by infectious organisms. During the epidemiological transition when the book on infectious diseases was thought to be closed and the concomitant increase in research on "life-style" factors began to flourish, a line was formed distinguishing chronic and infectious disease research agendas. This distinction has been dissolving as an increasing number of infections are being implicated in the multifactorial risk profiles of chronic health outcomes. Examples include the link between Helicobacter pylori infection and peptic ulcer disease, human papilloma virus and cervical cancer cases, and the growing body of research examining the link between infection and cardiovascular disease. The use of observational studies for assessing the relationship between infection and chronic health outcomes has been called into question since randomized clinical trials examining the effect of anti-infective treatments on incidence of chronic disease have shown equivocal results. The dynamic nature of the pathways by which infection may influence chronic disease has implications on the use of the randomized clinical trial as the "gold-standard" for assessing these links. It is evident that there are numerous methodological, sociological, and biological factors that must be considered when evaluating the epidemiological literature supporting a link between infection and chronic disease. Some examples of these issues include the need to: "Explore the role of co-factors and the influence of socioeconomic and other demographic determinants on the pathways between infection and chronic disease outcomes" Assess the type of damage that may be caused by a particular organism. For example, some organisms may act in a hit-and-run manner that triggers chronic disease processes well after the widow of detection of the invading organism has passed "Measure and characterize latent and recurrent infections as well as immune response, since latent and recurrent infections may cause repeated damage over the lifecourse " Gather data on the interaction between co-infections or overall burden of infection with multiple pathogens "Detect new infectious organisms and devise methods for isolating organisms from tissue or serum Examples abound that demonstrate the complicated epidemiology concerning the link between infection and chronic conditions. Understanding the influences of demographic shifts, timing of infection and social processes can help elucidate these linkages. The association between H. pylori infection and stomach cancer illustrate these issues well: "Demographic shifts: There are strong disparities in the prevalence of stomach cancer between the US and lesser developed countries. In the US, the incidence in stomach cancer has dropped steadily since the 1900's but the incidence in lesser developed countries is still high. "Timing of infection: The disparity in cancer prevalence could be explained by age at infection, since H.pylori infection is likely to occur at younger ages among individuals living in lesser developed areas compared to the US. Therefore, individuals in lesser developed countries may be infected with H. pylori for a longer period of time, leading to higher levels of damage to the stomach. "Social processes: Studies have reported a stronger association between low socioeconomic position in childhood compared to adult socioeconomic position and incidence of stomach cancer in adulthood. It appears that socioeconomic determinants in childhood shape adult risk of stomach cancer, independent of adult socioeconomic status. Therefore, lifecourse socioeconomic processes influence the link between H. pylori infection and later life chronic disease outcomes.

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**EPID890**

Doctoral Seminar in Epidemiology

Fall Winter Spring Summer term(s)

2 Credit Hour(s)

Instructor(s): Staff

Students will give a 50-minute presentation as part of the departmental seminar series. One faculty member will work with student in developing seminar and then critique it afterwards.

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**EPID891**

Advanced Readings in Epidemiology
Students will review assigned readings on the epidemiology or natural history of specific infections or chronic diseases or on host or environmental factors associated with disease, or on epidemiological methods and their application. May be elected more than once.

**EPID970**  
Pre-candidacy research in Epidemiology  
Fall Winter Spring Spring-Summer Summer term(s)  
1-8 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Doctoral Student in Epidemiology Standing  
Original investigations in the various fields of Epidemiology as part of the student's preparation for their dissertation research and writing.

**EPID990**  
Dissertation Research/Pre-Candidate  
Fall Winter Spring Summer term(s)  
1-8 Credit Hour(s)  
Instructor(s): Staff  
For students who have NOT reached candidacy yet.

**EPID995**  
Dissertation Research/Candidate  
Fall Winter Spring Summer term(s)  
8 Credit Hour(s)  
Instructor(s): Staff  
Election for dissertation work by doctoral student who has been admitted to status as a candidate.

**HBEHED516**  
Global Health Anthropological Perspectives (Anthro 416)  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Inhorn, Marcia  
Master's level lecture course designed to provide an extensive overview of the major initiatives and issues in global health over the past three decades. Anthropological perspectives on and critiques of international health development programs will be emphasized. Readings will focus on examples of anthropology in global public health, and written reactions to these readings, along with two objective exams, will form the basis for course grading. The course constitutes an elective for students in the developing Global Health IC, and will be cross-listed as an upper-division undergraduate course in the Department of Anthropology (LS&A). Although anthropological perspectives will be emphasized no prior anthropological coursework or competencies are expected of students.

**HBEHED530**
Techniques of Survey Research
Winter term(s)
3 Credit Hour(s)
Instructor(s): Wren, Patty
Techniques of sample interview surveys developed through lecture, research literature, discussion, and experience in design, including sampling considerations; questionnaire construction and interviewing; coding; processing, including adaptation to machine methods; and application, presentation, and evaluation of results. Emphasis on health surveys. A research project is developed as part of the course.

HBEHED540
Fundamentals of Reproductive Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Snow, Rachel
Prerequisites: Recommend prior human physiol course
The course provides a comprehensive introduction to the field of reproductive health, in the USA and internationally. The course will introduce students to historical trends in the global burden of reproductive ill-health, the social ecology of reproductive risk, clinical health practice, and current controversies in policy and practice. Through a comparative look at reproductive health needs (e.g. maternal morbidity, contraceptive use, STI care and HIV-related services), in a range of diverse social settings, we will critically examine the logic and impact of current international standards for RH policy and practice.

HBEHED547
Consultation - Theory and Process
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Grad Status
Concepts and theory of the consultation process, role and functions of the consultant, consultant methods and skills, agency and administrative settings, linkage of consultation process to use of technical knowledge and skills. Field consultation project required.

HBEHED550
The Challenge of HIV/AIDS: Strengthening Health Systems in Resource-Poor Settings
Winter term(s)
3 Credit Hour(s)
Instructor(s): Snow, Rachel
Over 40 million people are currently infected with HIV, with over of these living in the poorest countries. While new drugs and social interventions in the North are preventing mother-to-child HIV transmission, and have substantially reduced AIDS-related morbidity and mortality, similar interventions are making limited headway in resource-poor settings especially those most severely affected by HIV/AIDS. Failure is in part due to funding, but more often a consequence of the underlying weakness of health systems. This course will address the operational and social challenges of implementing HIV prevention and care where health and education systems are weak, and political structures fragile. We will critically evaluate a wide range of health and behavioral interventions that have failed or succeeded in sub-Saharan Africa and South Asia, and explore why things work, and attempt to identify models of best practice for diverse settings. We will review emerging opportunities posed by the Global Fund and the Millennium Development Goals to use HIV-related donations to leverage improvements in the overall health sector in poor countries.

HBEHED578  
Practical Projects  
Fall Winter Spring Spring-Summer Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Not offered 2005-2006  
Prerequisites: None  
Practical projects in the application of theory and principles of Health Behavior and Health Education to individual and community-based public health settings. Course requirements include an approved practical project related to Health Behavior and Health Education in consultation with a faculty advisor. May be elected more than once. Enrollment limited to Health Behavior and Health Education majors with at least two full terms of prior registration.

HBEHED580  
The Environmental Health Movement  
Fall term(s)  
3-2 Credit Hour(s)  
Instructor(s): Staff  
Not offered 2005-2006  
Prerequisites: Grad Status  
This course, taught in seminar format, focuses on the grassroots groups across the nation that have organized to fight against exposure to pollution and for environmental justice. It introduces students to the social movement literature and encourages them to critique social movement theory in light of the experiences of these community groups. A major feature of the course is an examination of competing explanations for environmental degradation, and the implications each has for political organizing and social change.

HBEHED590  
Health Issues in an Aging Society  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
Not offered 2005-2006
This course focuses on the cultural, environmental, and economic aspects of an aging society and its impact on public health. It examines the health characteristics of a diverse older population and the implications of age-related changes in health on older people and their families. The course also provides a critical review of the social and political factors influencing the availability of health care and related support services to the older population.

**HBEHED600**
Psychosocial Factors in Health-Related Behavior
Fall term(s)
3 Credit Hour(s)
Instructor(s): Strecher, Vic
Psychological and social determinants of health, illness, and sick role behavior, emphasizing the decisional bases for health-related actions. Critical review of models of health behavior. Role of social communication and influence processes in health decisions. Application of concepts from behavioral science to a variety of health problem areas.

**HBEHED601**
Health Behavior and Health Promotion
Fall term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: HBHE 600 or similar course preferred
Relationships among each of several risky behaviors and health status, educational and structural approaches to modification of those behaviors, prevention of relapse, ethics of health promotion, sites for health promotion activities, and evaluation of health promotion. Ecological models, empowerment theory and intervention design issues are considered. Each student prepares one oral and one written report covering some one-health promotion topic in depth.

**HBEHED602**
Foundations of Health Education Practice
Fall term(s)
4 Credit Hour(s)
Instructor(s): Wang, Caroline and Gee, Gil
Prerequisites: Grad Status, Perm. Instr., and for HBHE students only
Foundations for Health Education Practice is a professional socialization course for first year MPH students in the Department of Health Behavior and Health Education. The course provides an introduction to public health and health education practice. The purpose of the course is to enable each student to (1) understand the mission, history, and breadth of public health and health education; (2) build core skills for practice; (3) identify one's professional ethical responsibilities and obligations; and (4) develop competency as a reflective practitioner in health behavior and health education who is cognizant of the relationship among one's own culture, interests, and biases. The course also aims to expose students to a broad range of professional opportunities and practice settings within public health and health education.

**HBEHED603**
Population Change: Gender, Family & Fertility in Africa and Asia
Winter term(s)
Instructor(s): Snow, Rachel
Prerequisites: Permission of instructor required.
This seminar will review causes and consequences of recent demographic change in Africa and Asia, highlighting emerging trends in gender, family formation and fertility. An exploration of general global and regional trends will be followed by in-depth case-study of five countries: India, China, Burkina Faso, South Africa and Zimbabwe. In each case we will reflect on the relative contributions of demographic pressure, population policies and programs, the international women's movement, and the continuing AIDS epidemic, to the observed trends in sexual behavior, gender norms, marriage, and fertility.

HBEHED606
Foundations of Reproductive, Maternal, and Infant Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Misra, Dawn
Prerequisites: Grad Status
Course participants critically examine major problems and issues and related policies and programs associated with fertility, reproduction, birth and the health status of women of reproductive age and infants. Themes include: historical and present context of health issues, programs and policies; biological, social, cultural, behavioral and environmental influences; social and ethical issues associated with emerging reproductive technologies; content and efficacy of policies and programs. Special topics include AIDS, sexually transmitted diseases, contraception and related services; genetic issues and services; abortion, maternal-fetal treatments; prenatal care, childbirth and perinatal care; pregnancy outcomes and infant mortality; and breast feeding. Students learn to use common social and health status measures; synthesize research literature and other data/information; write concise issue analysis papers on selected topics; and participate in group discussion and decision-making regarding recommended actions.

HBEHED607
Foundations of Child and Adolescent Health (SW 714)
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Perm. Instr.
This course uses a developmental perspective to focus on key problems and issues and related program and policy interventions that affect the health of children and adolescents. Within this structure, the etiology of health problems and issues at each life phase is considered, followed by discussion of related policies and program solutions. Biological, social, cultural, behavioral, political, economic and physical factors and their interrelationships as they influence the context of health status, policies and programs are examined. Sources and appropriate use of common measures of child and adolescent health status and service are introduced.

HBEHED608
Infant Mortality: Paradoxes, Programs and Policies
Winter term(s)
3 Credit Hour(s)
Greater proportions of U.S. children die during the first year of life than in most industrialized and several developing countries. Several paradoxes in risk factor-outcome relationships have recently been described in diverse populations, suggesting that many risk factors are rather inadequate proxies for other more causal variables. This course provides the opportunity for in-depth analysis of infant mortality and its causes. Major explanatory hypotheses and possible causal mechanisms will be examined, along with gaps in theory and knowledge. The evidence supporting or refuting current program and policy initiatives will also be assessed.

**HBEHED610**
Ethical Considerations for Health Professionals
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Not offered 2005-2006
Prerequisites: Grad Status

This course examines the ethical dimensions of health care in the United States. Important moral dilemmas and ethical issues are identified, and various historical, philosophical and cultural influences on health care ethics are reviewed. Using a case approach, students are expected to apply ethical guidelines to specific problems related to providing access to care, maintaining patient autonomy, selecting health interventions and prioritizing services and resources. The course is designed for masters degree students in Public Health and Social Work, and for others who plan to work in health care settings.

**HBEHED614**
Women's Health and the Timing of Reproduction
Winter term(s)
3-4 Credit Hour(s)
Instructor(s): Geronimus, Arline T
Prerequisites: Perm. Instr.

Applies a systems perspective to examine the personal, social, and cultural factors that influence the age at which women initiate childbearing and the implications of these factors for the health of women and infants. Topics include teenage childbearing, Black American fertility patterns, infant mortality, ethnographic and other research methods, and related policy issues. Reviews current, historical, and cross-cultural examples. Students apply course concepts and methodologies to specific research and policy questions.

**HBEHED615**
Mass Media, Public Health Practice, and Intervention
Winter term(s)
3 Credit Hour(s)
Instructor(s): Wang, Caroline
Not offered 2005-2006
The purpose of this course is to provide students with an understanding of how mass media can be used as part of an advocacy strategy to promote health and healthful public policy. Students will gain experience in framing issues to garner attention for public health solutions to social problems. Topics to be covered include theories of mass communication; uses and limitations of public health education campaigns; and unintended consequences of mass communication for health.

**HBEHED616**
Complementary Therapies and Alternative Healing
Winter term(s)
3-4 Credit Hour(s)
Instructor(s): Raisler, Jeanne

**Not offered 2005-2006**
This course examines the principles, practices, utilization and outcomes of complementary therapies and alternative healing. It will provide an overview of the field; review selected systems of alternative healing, and focus on specific healing modalities that are widely used in the general population. Students will learn to use evidence-based criteria to evaluate the risks and benefits of selected healing modalities. The integration of alternative and conventional health practices will be examined, and ethical, legal professional issues will be explored. Emphasis will be placed on taking alternative healing history, facilitating patients decision-making regarding alternative therapies, communication between allopathic and alternative healers, and training and certification issues. A holistic approach to the patient-healer relationship that emphasizes self-care will be maintained.

**HBEHED618**
Multiculturalism and Health Education
Winter term(s)
3 Credit Hour(s)
Instructor(s): Wang, Caroline

**Not offered 2005-2006**
This course focuses on the meaning of ethnicity and social group membership as factors that influence ones identity and effectiveness as a public health professional. The course will give students an overview of the range of theoretical approaches, key practice concepts, and skills used to promote health in a multicultural society. It will include a focus on moving beyond paternalism in community settings. As a result of taking this course, students will be better equipped as professionals to consider self-reflexively their own attitudes about the other, and to identify, design, and implement positive strategies for health education in multicultural settings.

**HBEHED620**
Behavioral Research Methods in Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Zimmerman, Marc

Principles of design of behavioral research on public health problems and programs. Objectives, philosophy, and methods of science including causal inference, the role of hypotheses, criteria for establishing adequate hypotheses, research designs and data collection techniques. Formulation of a research problem within a program setting.

**HBEHED621**
Seminar in Behavioral Research Methods in Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Krause, Neal M
Prerequisites: HBHE 620 or equiv.
Intensive analysis of selected topics; characteristics and advantages of alternative types of studies; purposes of various experimental designs; development of methodology for program evaluation; interviewing and questionnaire construction and problems in analysis of data, with particular emphasis on problems of spuriousness

HBEHED622
Program Evaluation in Health Education
Fall term(s)
3 Credit Hour(s)
Instructor(s): Wren, Patty
Prerequisites: Biostat 503 or equiv. and a course dealing with health education program development
Examination and application, through a series of exercises, of several program evaluation models relevant for health education, including the goal attainment, goal-free, systems responsive, and decision-theoretic models, with emphasis on both process and impact analysis. Design options for measuring program effect, with the associated threats and external validity, are discussed, and several basic statistical techniques are reviewed and examined in terms of their applicability to program evaluation, including sampling and sample size determination for both surveys and experiments.

HBEHED623
Racial/Ethnic Health Disparities
Winter term(s)
3 Credit Hour(s)
Instructor(s): Neighbors, Harold
Not offered 2005-2006
This course focuses on how public health has responded to the unique health and mental health problems of ethnic "minority" groups with emphasis on African Americans. The course focuses on various models of mental disorder and how those models are operationally defined in community and clinical studies, with particular attention paid to group differences in diagnosis and epidemiologic case-finding. Emphasis is also be placed on risk and protective factors such as stress, social support, identity, discrimination, acculturation, and coping capacity.

HBEHED624
Need Assessment Methods for Behavioral and Educational Health Programs
Fall term(s)
3 Credit Hour(s)
Instructor(s): Sonnega, John
This course is for the student who is interested in gaining knowledge and skills about different methodological approaches to doing need assessment for health and human service organizations. The course will focus on the use of both secondary (e.g. agency statistics, census) and primary (survey, forums, informants, focus groups) data. The course emphasizes feasible and inexpensive methods, which can be used by internal evaluators. Students will learn how community epidemiologic surveys (e.g. the National Institute of Mental Health Epidemiologic Catchment Area Program) can be used in conjunction with local secondary data for synthetic estimation of health needs. Need assessment will be conceptualized as a political process as well as a research methodology. Three class sessions will be devoted to an in-depth analysis of a major mental health need assessment conducted by the instructor for the Michigan Department of Corrections. By using this study as a case example, students will be provided with an "inside look" at the social side of need assessment. The case study will also focus on using need information for program development.

**HBEHED625**
Research in Health Behavior
Fall Winter Spring Spring-Summer Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm. Inst.
Individual work on a problem in the area of health behavior relevant to program effectiveness in public health, under the tutorial guidance of an appropriate staff member. Regular conferences are arranged to discuss research designs, proposed problem solutions, methods for data collection and analysis. The investigation is reported in a paper, which may be submitted for publication. May be elected more than once.

**HBEHED626**
Counseling and the Health Decision Process
Fall term(s)
3 Credit Hour(s)
Instructor(s): Chatters, Linda
Not offered 2005-2006
Prerequisites: Graduate Standing
The course will examine counseling for health decisions as an interchange between counselor and client which requires the effective communication of information relevant to the health decision/condition, as well as a recognition of each participants' differing backgrounds, perspectives, and motivations. Course content covers three broad areas: 1) models, goals and components of the counseling process, 2) values and ethics in counseling for health decisions, and 3) how attributes of the client and the health decision itself affect the nature and course of the counseling experience. Several health conditions/situations will be examined to compare and contrast salient features of different counseling interactions. Students will participate in simulations of counseling situations as observer, client, and counselor. The class format will include lectures and class discussion based on assigned readings, attendance at and participation in presentations made by guest speakers, and small group activities.

**HBEHED627**
Chronic Illness Interventions: Infancy to Young Adulthood
Fall term(s)
3 Credit Hour(s)
Instructor(s): Connell, Cathleen
Prerequisites: Perm. Instr.

This course examines intervention efforts aimed at the self-management of chronic illness from a lifespan perspective with a focus on infancy, childhood, adolescence, and young adulthood. Theoretical and conceptual frameworks for viewing chronic illness in the context of individual and family development will be discussed. Specific examples of health education interventions for selected chronic illnesses and school-based approaches to cardiovascular risk reduction will be examined. The appropriate developmental tasks and psychosocial and cognitive stages for individuals and their implications for the self-management of chronic illness will be described. The format of the course will rely heavily on structured and informed discussion. A brief overview will be provided each week, followed by exchange generated by discussion questions for each week's reading assignments as well as small group exercises. Student presentations based on a wide variety of chronic illnesses will be scheduled throughout the course.

HBEHED628
Chronic Illness Interventions: Midlife to Older Adulthood
Winter term(s)
3 Credit Hour(s)
Instructor(s): Connell, Cathleen
Prerequisites: Graduate standing

This course examines intervention efforts aimed at the self-management of chronic illness from a lifespan perspective with a focus on midlife and older adulthood. Theoretical and conceptual frameworks for viewing chronic illness in the context of individual and family development will be discussed. Specific examples of health education interventions for selected chronic illnesses will be examined, including diabetes, arthritis, asthma, health disease, COPD, and HIV/AIDS. The appropriate developmental tasks and psychosocial and cognitive stages for individuals and their implications for the self-management of chronic illness will be described. The impact of comorbidity, depression, coping, resilience, social support, and self-efficacy on self-management and the role of family caregivers will be discussed. The format of the course will rely heavily on structured and informed discussion. A brief overview will be provided each week, followed by exchange generated by discussion questions for each week's reading assignments as well as small group exercises. Student presentations based on a wide variety of chronic illnesses will be scheduled throughout the course.

HBEHED629
Families and Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Chatters, Linda
Prerequisites: Grad Status

This course will examine families as a primary context for understanding health and health-related behaviors. Major topics include: 1) models and theories of the family, 2) history and current status of family-based practice, 3) the impact of demographic trends and their impact on family structure and functioning, 4) family diversity with respect to social status groups, ethnicity, and culture and their implications for understanding health phenomena, 5) families as the context for socialization to health beliefs and practices, 6) the provision of family-based care, and 7) health profiles of family members and their family roles.

HBEHED630
Aging and Health Behavior
Winter term(s)
3 Credit Hour(s)
Instructor(s): Connell, Cathleen

**Not offered 2005-2006**

Prerequisites: Graduate standing

This course provides an overview of trends in aging and health with a particular focus on health behaviors and health promotion. Age-related changes in health and health behavior and the impact of societal and personal attitudes toward aging on health behaviors will be discussed. Successful aging, an emerging paradigm for gerontology, will frame discussion of strategies for facilitating optimal health behaviors among older adults. Current recommendations and practices and multi-level interventions will be presented for physical activity, smoking, obesity, weight management, nutrition education, immunizations, and cancer screenings. Recent evidence of the impact of health behaviors on brain health and the prevention of cognitive decline will be discussed.

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**HBEHED631**

Budget Practices in Health Education Programs

Winter term(s)
3 Credit Hour(s)
Instructor(s): McGranaghan, Robert

Budget practices in Health Education Programs provides an introduction to budgeting and other administrative skills and strategies relevant to managing public health education programs. Students will receive practical experience in understanding the terms, concepts, strategies, and practices associated with developing and managing budgets, investigating funding sources, and preparing grant proposals. In addition, students will be introduced to human resource issues such as successful hiring and interviewing techniques and managing time effectively. Sessions will include such topics as: Deconstructing the Budget (understanding the terminology and concepts of budgets); Building a Budget: What You Need, and How Do I Justify It? (Planning for and explaining what you'll need to fund a program); Managing a Budget: Where Does the Money Come From and Where Does It Go? (How to research and apply for funding opportunities and how to manage the funds once you get them); and Between the Proposal and the Final Report: Priority Setting, Time Management Skills, and the Hiring Process (including experiential sessions on developing effective strategies for setting and adjusting to daily and weekly priorities; managing your time effectively, and recruiting, interviewing, and hiring the right staff for your program.)

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**HBEHED633**

Social Networks and Social Support in Health Education

Winter term(s)
3 Credit Hour(s)
Instructor(s): Caldwell, Cleo

**Not offered 2005-2006**

Prerequisites: Perm. Instr. and Grad Status

Review and analysis of theory and empirical evidence concerning social networks and social support and their relationship to health status and health behavior. Examines utilization of social networks in health education programs, e.g., family network interventions, self-help groups, "natural helpers", community organizing.

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**HBEHED634**

Administration of Health and Population Programs
HBEHED636  
Qualitative Methods and Participatory Action Research  

Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  

Not offered 2005-2006  
Prerequisites: Perm. Instr. and Grad Status  
Examines when and how to use appropriate methods of qualitative data collection (e.g., structured and unstructured interviews, observations, group interviews) and data analysis (e.g., constant comparative method, coding schemes, theme memos). Research design issues will be discussed along with the use of qualitative data for health education theory building and program planning. Emphasis will be placed on the use of qualitative methods within a participatory action research framework.

HBEHED637  
Qualitative Methods and Proposal Writing  

Winter term(s)  
2-4 Credit Hour(s)  
Instructor(s): Inhorn, Marcia  

Seminar designed to provide a comprehensive overview of the qualitative research enterprise from an explicitly anthropological (ethnographic) perspective. The course focuses on ethics and entrance to the research setting, qualitative research design, interview-based and observational data collection methods, and grant proposal preparation. The course is skill-based, and students will conduct a number of methodological assignments in and out of the classroom. The major written assignment is a grant proposal on a topic chosen by the students, which will incorporate the qualitative research designs and methods discussed in class. The seminar is open to both masters and doctoral students; doctoral students will carry out additional written work regarding the grant proposal.

HBEHED640  
Community Organization for Health Education  

Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Israel, Barbara  
Prerequisites: Perm. Instr. and Grad Status  
Examines social and structural factors associated with health and illness; concepts and theories regarding planned change and community; and models and principles of community organization practice for health education. Several models of community organization are analyzed along the dimensions of: community diagnosis needs assessment, selection and implementation of action strategies, evaluation research, role of the professional and ethical considerations.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Term(s)</th>
<th>Credits</th>
<th>Instructor(s)</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>HBEHED641</td>
<td>Materials and Methods in Health Education Programs</td>
<td>Winter</td>
<td>3</td>
<td>Wren, Patty</td>
<td>Perm. Instr.</td>
<td>The goal of this course is to enable participants to select and use learning materials and methods in health education programs. The course consists of in-class sessions where various materials and media are demonstrated and their utility as enhancements to learning discussed. Technical and production aspects of materials and media are considered in several lab sessions. Students are required to produce health education materials or develop learning activities through fieldwork in addition to in-class and lab sessions.</td>
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<tr>
<td>HBEHED644</td>
<td>Readings in Health Behavior and Health Education</td>
<td>Fall</td>
<td>1-6</td>
<td>Staff</td>
<td>Perm. Instr.</td>
<td>Review of literature on selected topics in health behavior, health education or related areas under guidance of faculty member. Critical analysis; written and oral reports. May be taken more than once for a total not to exceed 6 credit hours.</td>
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<tr>
<td>HBEHED646</td>
<td>Education of Patients in the Health Care Delivery System</td>
<td>Fall</td>
<td>3</td>
<td>Parker, Edith</td>
<td>Grad Status</td>
<td>Analysis of programs and policies in patient and consumer education in hospitals, health maintenance organizations, private practice, and other health care delivery settings. Emphasis on organizational conditions necessary for development of effective education of patients and consumers.</td>
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<tr>
<td>HBEHED647</td>
<td>Educational Approaches to Human Resource Development in Health Organizations</td>
<td>Fall</td>
<td>3</td>
<td>Staff</td>
<td>Not offered 2005-2006</td>
<td>Models for training and continuing education in health organization presented within context of health manpower development and organizational change. Preparation of training design selection of methods, and evaluation procedures reviewed. Development and implementation of training conference required.</td>
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<tr>
<td>HBEHED651</td>
<td>Program Development in Health Education</td>
<td>Winter</td>
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HBEHED652
Group Process in Health Education
Winter term(s)
3 Credit Hour(s)
Instructor(s): Israel, Barbara
Not offered 2005-2006
Prerequisites: Perm. Instr.
Examines concepts, theories, and research in the field of group dynamics with particular application to health education. Emphasis on developing skills for observing, assessing, participating in, facilitating and evaluating small groups.

HBEHED655
Gender and Health: Ethnographic Approaches
Winter term(s)
3 Credit Hour(s)
Instructor(s): Inhorn, Marcia
Not offered 2005-2006
An interdisciplinary, graduate-level seminar designed to explore in an in-depth fashion ethnographic approaches to gender and health issues around the globe. Weekly, student-led seminar discussions will focus on summary, discussion (of theory, content, and methods), and critique of thirteen book-length anthropological studies of women's health issues in a wide variety of Western and non-Western sites (with a significant focus on the Middle East and North Africa, the professor's area of regional focus). Additional books will be required for a written comparative review. This course constitutes an elective for students in the Global Health and Reproductive/Womens Health ICs.

HBEHED656
Intersectionality and Women's Health: Ethnographic Approaches to Race, Class, Gender and Difference
Fall term(s)
3 Credit Hour(s)
Instructor(s): Inhorn, Marcia
Not offered 2005-2006
An interdisciplinary seminar designed to examine how the intersections of race, class, gender, and other axes of differences (e.g., age, religion, sexual orientation, disability, immigration) affect women's health in the contemporary United States. In this course, recent feminist approaches to intersectionality and multiplicity of oppressions theories will be introduced. Weekly, student-led seminar discussions will focus on summary, discussion (of theory, content, and methods), and critique of thirteen book-length ethnographic studies, which examine some aspects of intersectionality and women's health outcomes in the U.S. Additional books will be required for a written comparative review.
HBEHED660
Theory, Research and Practice in Adolescent Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Caldwell, Cleo
Not offered 2005-2006
Prerequisites: Grad Status
Examines educational efforts designed to promote better health outcomes among adolescents. Review developmental theories, research, and interventions to promote health in this population. Addresses various contexts for intervention programs and their implications. Topics covered include, but are not limited to, the effects of peer and family influences on health, resiliency, violence, alcohol and drug use, and sexual behavior.

HBEHED661
Human Communities and Disasters
Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Grad Status
This course will examine the public health dimensions of extreme events. It will examine the reasons for the increase in both natural and man-made disasters. The course will be concerned with the human meaning of disasters, their prevention, the assessment of harm from such events, the design of effective interventions, appropriate clinical responses, the joint involvement of both community members and policy makers in responding to disasters and the education of both lay and professionals in the prevention and intervention of disasters. It will be especially concerned with the phenomena of collective trauma and the selection and application of appropriate theoretical constructs for predicting and changing health behavior in such situations.

HBEHED663
Media Advocacy in Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Button, Gregory
Not offered 2005-2006
Media advocacy is the strategic use of mass media to pressure policy makers to develop and implement healthy public policies. Students will explore how public health workers and communities can employ media campaigns in order to gain greater control over public health decisions. Participants will learn how to gain access to the media and how to achieve agenda setting in order to reshape policy debates. Of central importance will be how to influence the topics journalists cover. The course will emphasize the importance of shifting focus from personal health behavior to the social, cultural, economic and political context of health problems.

HBEHED664
Developing Mental Health Intervention Programs
Fall term(s)
3 Credit Hour(s)
Instructor(s): Krause, Neal M

**Not offered 2005-2006**

Prerequisites: Grad Status

This course is designed to provide a theoretical and methodological foundation for the development of mental health intervention programs. Issues the definition, measurement, and epidemiology of mental health and mental disorders are examined. An emphasis is placed on the link between existing theories of mental disorder and the rationale for intervention planning. The efficacy of existing intervention and treatment approaches is examined. Public policy issues involving intervention and treatment are discussed.

**HBEHED665**

Media Coverage of Public Health Issues

Winter term(s)

3 Credit Hour(s)

Instructor(s): Staff

**Not offered 2005-2006**

Public health reporting is becoming an increasingly important field within the mass media, but few journalists who specialize in covering public health issues have any professional training in public health. Moreover, public health professionals often have a limited understanding of the impact of the media coverage of public health on behavior and policy. The field of journalism provides public health specialists an excellent opportunity to educate and inform the public. This course will introduce students to the field of public health journalism and provide an over-view of the media coverage of public health issues. Participants will learn how to critically appraise such coverage, respond to it, and shape it. Students will be provided with techniques and insights on how to influence the coverage of public health in the media in order to use media coverage as one avenue of health education. The perspective of this course will be based primarily on the social sciences. Writing and analytical skills will be stressed.

**HBEHED666**

Chronic Illness and Aging

Fall term(s)

3 Credit Hour(s)

Instructor(s): Staff

**Not offered 2005-2006**

Prerequisites: Grad Status

Review and discussion of selected chronic illnesses to illustrate: the causes and manifestations of chronic illness in various adult populations; differences in pain and treatment reactions; problems with comorbidities in older age groups; assessment and management concerns; research trends; and professional and ethical issues in dealing with chronic illness. Course is designed for departmental majors and other students from the health-related professions and social work, including those with minimal clinical backgrounds, who are interested in case study and team approaches to chronic illness intervention--especially with older adult populations.

**HBEHED667**

Bioterrorism: Community Preparation and Response

Fall term(s)

3 Credit Hour(s)

Instructor(s): Button, Gregory
Prerequisites: None

Bioterrorism presents unique challenges to both the public health profession and communities. This course will apply lessons learned from disaster studies and the study of bioterrorism to review such questions as what makes communities and specific populations within a community vulnerable?; how can we form responsive partnerships between government and communities?; how can we identify and strengthen individuals, organizations and support networks that can prepare for and respond to such events?; how can we utilize pre-existing volunteer networks?; how can we develop collaborative disaster educational outreach programs for mental health centers, medical clinics, and service agencies? The focus of our investigation will be based on case studies and research literature. Students will be required to develop final projects in collaboration with surrounding communities. Format of the course is lecture/discussion.

HBEHED668
Health Communications for Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Resnicow, Ken
Prerequisites: HBHE 600

From one-on-one health counseling to broad-based social marketing campaigns, a vast body of research over the past twenty years has demonstrated that numerous dimensions of health communications, including message format, receiver characteristics, and delivery channel can affect program impact. This course will address key considerations for constructing effective health communications including the application of behavior change theories and general marketing principles. Selected prior and current health promotion campaigns will be critically reviewed and students will be asked to develop a health communication intervention or social marketing campaign. Occasional guest lecturers, actively involved in development of health communication interventions will be integrated into the syllabus.

HBEHED670
The Stress Process
Winter term(s)
3 Credit Hour(s)
Instructor(s): Krause, Neal M
Prerequisites: Grad Status

This course examines the definition, measurement, and epidemiology of stressful life events. Consideration is given to the coping strategies and resources used by individuals who are confronted with stressful events (e.g., chronic illness and impairment, death of spouse, financial hardships). An emphasis is placed on the impact of life stressors on alcohol and drug use, mental disorders, physical health problems, and the utilization of health care services. Special topics include gender as well as racial and ethnic differences in the stress process. An emphasis is also placed on linking emerging models of the stress process with efforts to develop intervention programs.

HBEHED671
Motivational Interviewing in Public Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Resnicow, Ken
Prerequisites: HBEHED600, Perm Instr.
In the past few years, there has been increased interest in using motivational interviewing (MI) in public health and medical settings. Originally developed for the treatment of addictive behaviors, MI has recently been used to address chronic disease and other public health conditions, such as smoking, diet, physical activity, diabetes management, and medical adherence. At its core, MI is a method for assisting individuals to work through their ambivalence about behavior change. Deeply rooted in the person-centered philosophy of Carl Rogers, MI counselors are trained to rely heavily on reflective listening, more so than direct questioning, persuasion, or provision of advice. This course will provide participants with an in-depth overview of MI and provide opportunities to practice the core techniques.

**HBEHED680**

Youth Violence: Issues and Prevention  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Morrel-Samuels, Susan  
Prerequisites: Grad Status or NERS 484  
This course is designed to provide students with an understanding of intentional injury generally and adolescent violence-related injury in particular as a significant public health problem that is amenable to preventive measures in the same way as other public health problems. It will provide students with a comprehensive overview of the many issues associated with youth violence. The course will acquaint students with injury control theory more generally and cover the epidemiology of major violence-related injuries including disparities, social determinants as well as risk and resiliency factors associated with intentional injury. Topics to be covered include violence in schools, family (e.g., domestic violence) and peer (e.g., dating violence) influences, suicide, alcohol and drug use, firearms, and violence in the media. They will also learn about conceptual and theoretical models describing the etiology of adolescent violence-related injury and gain an understanding of how such frameworks influence the development of prevention programs. The course presents examples from local communities who are actively involved in youth violence prevention. The course will be linked to activities of the CDC funded Youth Violence Prevention Center and will include discussions with community partners. The course will be working with the Office of Community Based Public Health (OCPBH) to create student mini projects.

**HBEHED684**

Politics of Health Care  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
Not offered 2005-2006  
To account for the unequal distribution of morbidity and mortality in the United States, this course examines the structure of American government, the relationships among different levels of government, the political influence of public and private interest groups, and the development and dissemination of political ideology. The course is intended for students with little or no previous course work in political science.

**HBEHED685**

Health Education Models of Practice and Interventions at the Community Level  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Parker, Edith  
Not offered 2005-2006
Prerequisites: HBHE doctoral students; second yr MPH/HBHE students; or Perm Instr

The course is designed as a doctoral seminar for HBHE doctoral students. The course will examine and critique current models of health education and behavior change which intervene at the community level to bring about behavior change which intervene at the community level to bring about behavior change. The focus will be on recognized health education interventions/strategies. Major topics will include: 1) methods for behavior change (i.e., community organizing; mass media, etc.); 2) policy activities; 3) organizational change activities; 4) advocacy activities; 5) community planning models. This course will also be available to second year HBHE masters students on a permission of instructor basis.

HBEHED686
Advanced Issues in Health-Related Behavior
Winter term(s)
3 Credit Hour(s)
Instructor(s): Janz, Nancy K
Prerequisites: HBHE doctoral students & HBHE 600 or HBHE 600 & Perm Instr

This course will involve an in-depth examination of models of health behavior with an emphasis on measurement issues and application of health behavior theory in intervention research. Major issues/constructs to be discussed include: gender differences in health, quality of life, value expectancy models, self-efficacy, patient adherence and the influence of patient-provider relationships. Discussions of research findings and current directions in health education and behavior change will emphasize areas related to women's health.

HBEHED690
Environmental Health Education
Winter term(s)
3 Credit Hour(s)
Instructor(s): Gee, Gil
Prerequisites: HBHE 600 or Permission of Instructor

This class applies health education principles towards understanding and intervening on different environmental hazards. The course will review various kinds of environmental issues, including biochemical toxins, physical hazards, and psychosocial stressors. Students will learn about select datasources from which they may obtain environmental health information. The course will examine the literature on risk perception, risk communication, ethics, and environmental health education and explore how health educators can use resource and conceptual tools to help ameliorate environmental concerns. This course will also examine case studies from individual communities as focal points for discussion. Based on these case studies, students will explore whether extant theories and approaches can help protect vulnerable populations, insure environmental justice, and reduce health disparities. The format of this class is a combination of lecture and discussion.

HBEHED691
Public Health Issues Among Asian And Pacific Islander Americans
Winter term(s)
3 Credit Hour(s)
Instructor(s): Gee, Gil
This graduate seminar examines the health of Asian and Pacific Islander Americans (APIAs) in order to more broadly inform the understanding of health disparities. The class will contrast the health of APIAs to other ethnic groups and also explore the variation in health between APIA subgroups. The class will examine the psychosocial factors that may impact APIA health, including immigration, acculturation, community, ethnic identity, racism, and intergenerational conflict. Further, students will discuss the methodological and conceptual challenges facing the study of APIAs, especially as related to their highly clustered and numerically small representation in the U.S. Finally, we will examine the challenges and successes related to interventions with APIA communities, families, and individuals.

**HBEHED692**

Women's Health and Reproductive Health

Fall Winter term(s)

1.5 Credit Hour(s)

Instructor(s): Misra, Dawn

Prerequisites: Permission of Instructor

This seminar course, intended primarily for students enrolled in the Interdepartmental Concentration in Reproductive and Women's Health, provides an overview of the fields of women's health and reproductive health with particular attention to how the fields relate, emerging issues within these fields from a multidisciplinary perspective, and implications for public health programs, health services, and policy. Topics include: the sociohistorical context of changing conceptions of reproduction health and women's health in the United States and worldwide; current understandings of gender as social cause of health and illness; an overview of women's health problems across the lifespan; emerging perspectives on the relationships between women's reproductive health and overall health; social and ethical issues related to emerging reproductive technologies; and issues in access to care, design of health services and public health programs, and policymaking in reproductive health and women's health.

**HBEHED693**

Seminar on Health and Poverty

Fall Winter term(s)

3 Credit Hour(s)

Instructor(s): Geronimus, Arline T

*Not offered 2005-2006*

Explores dimensions of poverty in terms of the interrelationships of socioeconomic status, racism, minority status and health. The focus is on the United States and topics discussed include different conceptualizations of and perspectives on the relationship of poverty to health, issues in child and family health, in urban and rural poverty and health, and issues relevant to improving health services and health policy targeted at socioeconomically disadvantaged populations.

**HBEHED695**

Women and Fertility

Winter term(s)

3 Credit Hour(s)

Instructor(s): Simmons, Ruth S

*Not offered 2005-2006*

Prerequisites: Perm Instr

This course is an examination of the theoretical and programmatic links between women's status or condition and fertility patterns.
**HBEHED699**  
Health Behavior and Health Education Capstone  
Fall Winter term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Perm Instr  
HBHE 699 is elected by students enrolled in the Masters degree program in Health Behavior and Health Education and who are in their final semester of study. Students engage in a synthesis/analysis of their individual program of study and skill and knowledge formation in health behavior and health education. Specific objectives are to: 1) consider how various aspects of their course work informs their summary evaluation of the field placement and 2) describe how course work, the field placement experience and other activities relate to explicit competencies for the program, as well as specific career goals and objectives. Information used in this process includes a review of the students original statement of purpose, field placement experience, course work within HBHE and the SPH, program and course exit competencies, and related additional work, research or internship experiences. Students write a capstone paper under the guidance and supervision of the faculty advisor.

**HBEHED701**  
Practicum in Health Behavior and Health Promotion  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Staff  
Not offered 2005-2006  
Prerequisites: HBHE 601, Perm Instr  
This course is designed to provide students with both experience in one of a number of practice sites and classroom education to integrate learning from the field with theoretical perspectives. Topics covered in HBHE 601 are used for discussions about theoretical applications. Practicum sites may include school settings, home health care, intergenerational day care, outpatient adult mental health services, OB/GYN clinic, county departments of public health and other community-based sites.

**HBEHED702**  
Reducing Racial/Ethnic Health Disparities  
Fall Winter term(s)  
1.5 Credit Hour(s)  
Instructor(s): Derek, Griffith and Neighbors, Harold  
Prerequisites: Permission of instructor, graduate standing. The course is primarily for doctoral students.
This interdisciplinary, graduate level seminar is designed to: 1) explore in an in-depth fashion racial/ethnic disparities in health in the United States and approaches to reducing those disparities; and 2) to support the development of scholars prepared at the doctoral level to pursue research and interventions to address these disparities. Weekly seminar discussions will focus on summary, discussion (of theory, content and methods), and critique of articles on racial and ethnic health disparities from a variety of disciplinary perspectives (e.g., sociology, political science, health behavior and health education, epidemiology, health management and policy, urban planning, psychology). The seminar will focus on developing a rigorous critical analysis of these disparities and an understanding of the potentials and limitations of various approaches to addressing them (e.g., health care system, behavioral strategies, community change, and policy interventions). As part of the seminar, participants will present and engage in critical discussion of their own emergent research interests. Grades will be given at the end of the second semester of the two-semester course sequence.

**HBEHED710**

Special MPH Topics in Health Behavior and Health Education

Fall term(s)

1-6 Credit Hour(s)

Instructor(s): Staff

Masters level seminar designed to provide an extensive review of a number of substantive and methods and skill areas in health behavior and health education. Readings, discussion and assignments are organized around issues of mutual interest to faculty and students. Reviews and reports on topics required in the areas selected. May be elected more than once.

**HBEHED800**

Seminar in Health Behavior and Health Education

Fall term(s)

3 Credit Hour(s)

Instructor(s): Geronimus, Arline T

Advanced study of principles of health behavior, educational and motivational approaches to improve health, and research and evaluative issues in health behavior and health education. Includes discussion of behavioral science and health education applications to public health, with special topics selected by students for review and discussion. Designed for doctoral students in Health Behavior and Health Education. May be elected more than once.

**HBEHED810**

Special Topics in Health Behavior and Health Education

Fall Winter term(s)

2-6 Credit Hour(s)

Instructor(s): Staff

Doctoral seminar designed to provide an extensive review of a number of substantive areas of health behavior and health education. Readings and discussion organized around issues of mutual interest to faculty and students. Reviews and reports on topics required in the areas selected. May be elected more than once.

**HBEHED849**

Research in Health Education

Fall Winter term(s)

2-6 Credit Hour(s)
Instructor(s): Staff  
Prerequisites: HBHE 620  
Investigation of a selected topic in health education; development of study and plan of operation; conduct of investigation and preparation of final report. Primarily for students in the Department with prior master's or doctoral preparation, others by permission. Emphasis on application of basic research competence in study of problems in health education. May be elected more than once.

HBEHED850  
Psychosocial Factors in Mental Health  
Fall term(s)  
2 Credit Hour(s)  
Instructor(s): Neighbors, Harold  
Prerequisites: Graduate Standing and Permission of Instructor  
Selected advanced topics including problems of diagnosing psychopathology through community surveys, psychosocial predictors of mental illness, primary prevention and coping with undesirable life events. This seminar brings together a multidisciplinary set of faculty and students from sociology, psychology, health behavior and health education, psychiatry, and epidemiology to present and discuss recent research on the social and psychological sources of mental and physical health. Substantively, the seminar will focus on the role of psychosocial and social structural factors in the etiology and course of health and illness, including the study of life events, chronic role strains, resources for adapting to potential stressors, and the actual process of coping and adaptation. The application of social epidemiology to problems of service utilization may also be considered.

HBEHED900  
Research in Health Behavior and Health Education  
Fall Winter Spring Spring-Summer Summer term(s)  
2-6 Credit Hour(s)  
Instructor(s): Staff  
Research work undertaken by doctoral students in collaboration with faculty advisers, including participation in on-going departmental research activities. Open only to doctoral students in Health Behavior and Health Education. May be elected more than once.

HBEHED990  
Dissertation/Pre-Candidate  
Fall Winter Spring-Summer term(s)  
1-8 Credit Hour(s)  
Instructor(s): Staff  
Half Term (IIIA or IIIB, 1-4 credits) Election for dissertation work by doctoral students in Health Behavior and Health Education who are not yet admitted to status as a candidate.

HBEHED995  
Dissertation Research for Doctorate in Philosophy  
Fall Winter Spring-Summer term(s)  
8 Credit Hour(s)  
Instructor(s): Staff
Half Term (IIIA or IIIB, 1-4 credits) Election for dissertation work by doctoral students admitted to status as candidate.

**HMP517**  
Issues in Public Health Genetics  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Citrin, Toby  
Prerequisites: EPID 515 or Perm Instr  
This course focuses on ethical, legal, and social issues and analysis arising from the increasing application of genetic technologies to the health of individuals and populations. The four course segments cover the technical and social background of population-based genetic interventions, decision making criteria used in assessing the feasibility of proposed genetic screening programs and gene therapy trials, policy frameworks, such as cost-effectiveness analysis and ethical reasoning, which can aid in the selection and design of genetic programs and policies, and the deliberative processes decision making bodies can use in resolving differing interests as policy is developed and adopted. Each segment involves didactic presentations and class exercises in which students will grapple with current and anticipated publicized dilemmas. The segments collectively are linked by examples common to each portion of the course.

**HMP518**  
Issues in Public Health Genetics-Online  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Citrin, Toby and Modell, Stephen  
**Not offered 2005-2006**  
This course focuses on ethical, legal, and social issues and analysis arising from the increasing application of genetic technologies to the health of individuals and populations. The four course segments cover (1) what we mean by policy-making and the various ways in which genetics issues are being framed and genetics policies are being developed and adopted; (2) issues arising from the application of genetics technology in health care and public health services, and the way these applications affect individual, family, professional and societal interests; (3) issues arising from the ownership and application of genetics technology by the health industry; and (4) a historical view of genetics and consideration of the role genetics might play in either exacerbating or reducing health disparities.

**HMP578**  
Practical Projects in Health Management & Policy  
Fall Winter Spring Spring-Summer Summer term(s)  
1 Credit Hour(s)  
Instructor(s): Staff  
This course is designed for students wishing to pursue an internship relative to their degree program (primarily for international students). Practical experience is required for this course. Note: The Department is not obligated to find employment/internships for students. Course requirements include an approved practical work experience and consultation with faculty advisor.

**HMP600**  
The Health Services System I
Fall term(s)
4 Credit Hour(s)
Instructor(s): Lichtenstein, Richard L
Prerequisites: Enrollment in HMP or Perm Instr
First part of two-course sequence focusing on major issues in the organization of a health services system: role of values; assessment of health status; analysis of need, access and use of services; current supply and distribution of health resources; analysis of health care costs and expenditures. Students enrolling in HMP 600 are expected to also complete HMP 601.

**HMP601**
The Health Services System II
Winter term(s)
4 Credit Hour(s)
Instructor(s): Wyszewianski, Leon
Prerequisites: HMP 600
Second part of two-course sequence focusing on major issues in the organization of health services system: private and public financing of health services; quality of care assessment; control of quality and costs of care through market-oriented strategies, professional self-regulation, managerial approaches, and government regulations; and system reform.

**HMP602**
Survey of the U.S. Health Care System
Winter term(s)
4 Credit Hour(s)
Instructor(s): Lichtenstein, Richard L and Wyszewianski, Leon
Prerequisites: Grad Status
Analysis of current organizational arrangements and patterns for provision and financing of medical care services in the United States. Topics include the medical care process and factors which affect need, access and use of services; factors affecting supply and distribution of health professionals and health facilities, and current issues pertinent to these health care services; factors related to health care costs; quality assessment and assurance; and financing of care through health insurance and governmental programs.

**HMP603**
Managing Health Care Organizations
Winter term(s)
3 Credit Hour(s)
Instructor(s): Griffith, John R
Prerequisites: HMP Masters Standing or Perm Instr
Comprehensive basic review of how modern health care delivery institutions are organized, how they respond to their environment, and how they reach and implement decisions about their future activities. The institution will be viewed as an open system with operational subsystems in governance, clinical service management and support services such as finance, planning information and human resources, Students will leave with the ability to evaluate any real subsystem in terms of functions and performance measurement. For future administrators and those who expect extensive professional involvement with health care provider institutions.
HMP606
Managerial Accounting for Health Care Administrators
Winter term(s)
3 Credit Hour(s)
Instructor(s): Grazier, Kyle and Smith, Dean G
Prerequisites: Intermediate microeconomics theory
Concepts and techniques of managerial accounting for generalist health care administrators. Topics covered include full cost measurement, differential cost measurement and analysis, sources of revenue, price setting, budgeting and control, costs and decision-making fund accounting.

HMP607
Corporate Finance for Health Care Administrators
Fall term(s)
3 Credit Hour(s)
Instructor(s): Wheeler, John RC
Prerequisites: HMP606
Corporate finance theory and applications to health care organizations. Topics include the capital expenditure decision, the capital financing decision, financial feasibility, financial planning, cash management, and financial aspects of prepayment programs. The course makes extensive use of case studies.

HMP608
Health Care Financial Accounting
Fall term(s)
1-2 Credit Hour(s)
Instructor(s): Wheeler, John RC and Grazier, Kyle
Prerequisites: none
HMP 604, Health Care Financial Accounting, provides an overview of financial accounting for students interested in health care management and policy. It is designed to serve the needs of both students who have never had a course in financial accounting (for 2 credits) and students who have had an introductory course in financial accounting but without health care applications (for 1 credit).

HMP610
Cost-Effectiveness Analysis in Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Eisenberg, Daniel
Prerequisites: Perm. Instr
HMP 610 focuses on the use of cost effectiveness analysis to inform decisions about improving health. The course also covers a number of related analytical tools such as cost benefit analysis, decision analysis, and sensitivity analysis. Students will learn theoretical justifications for these tools as well as their limitations. The main goal is for students to understand when cost effectiveness analysis and related tools are appropriate and how to apply them in practice to a broad range of health issues.

HMP612
Medical Management of Disease
**HMP615**

**Introduction to Public Health Policy**

Fall term(s)

1 Credit Hour(s)

Instructor(s): Hayward, Rodney

Basic introduction to how disease is conceptualized and managed under the medical model. The course includes an introduction to medical terminology and disease taxonomy, and a basic introduction to issues in disease natural history, progression, prognosis, and diagnostic and therapeutic decision making and management relevant to non-medical health services professionals. Designed for students pursuing a Masters in Health Services Administration.

**HMP616**

**Understanding Organizations**

Fall term(s)

3 Credit Hour(s)

Instructor(s): Lantz, Paula

Describes the nature of public policy interventions within the various domains of public health, the theoretical motivations for undertaking them, the influence of the political, bureaucratic, and social environmental in which policy decisions are made, the consequences of such decisions, and the key dimensions of analysis of the effects of public health policies. In addition to conceptual discussion of each of the above, the course includes evaluation of several case studies of public health policy decisions and their implications.

**HMP617**

**Understanding Health Care Organizations**

Fall term(s)

3 Credit Hour(s)

Instructor(s): Myers, Valerie

Prerequisites: grad status

This course is designed for students who are not concentrating in health care management studies but

Prerequisites: MHSA Candidate, MPH Candidate in HMP, or P.I.

This course provides an overview of key issues confronting modern organizations, with an emphasis on healthcare organizations but attention to supplier, customer, and other partnering organizations. The issues will be studied from several perspectives to familiarize students preparing for work in health care organizations with a working understanding of both organizational dynamics and approaches to understanding them. Students completing the course should understand fundamentals of how organizations are formed, governed, designed, and improved. They will also learn how workers and organizations related to each other, and how organizations relate to their environment and other organizations.
This course is designed for students who are not concentrating in health care management studies but who need some understanding of health care organizations. The course provides an overview of some key issues confronting these organizations and alternative perspectives, drawn from several disciplines, for understanding how to achieve results through health care organizations. Topics include the policy environment for healthcare organizations, organizational structure, motivation and incentives, individual and group behavior, group decision making, quality measurement and improvement, and organizational relations with their environments. Case examples are drawn from current health care organizations.

HMP618
Tobacco: From Seedling to Social Policy
Fall term(s)
3 Credit Hour(s)
Instructor(s): Douglas, Clifford
Provides a comprehensive examination of the historical and contemporary use of tobacco products and of their health and social implications. The objective of the course is to learn how lessons from history, epidemiology, health behavior, and policy analysis can be combined to understand the nature of, and potential policy responses to, the ongoing epidemic of tobacco-related disease. Coverage includes history; production of tobacco products; marketing; elucidation of disease links; societal responses; impacts of anti-tobacco policies; industry responses; economics and politics of tobacco; cessation methods; lawsuits against the industry; contemporary policy developments in the U.S.; the global use of tobacco; the future of tobacco use and tobacco control.

HMP619
Exploring a Health Maintenance Organization
Winter term(s)
2 Credit Hour(s)
Instructor(s): Geyer-Sylvia, Zelda
Prerequisites: HMP 600,601,603,607
This course will describe the components of a Health Maintenance Organization and explore which characteristics are necessary to achieve excellent performance. Organizational structure, measurement indicators, and case examples will be used to get inside the workings of an HMO. Major emphasis will be on core operations, network and medical administration, marketing, and financial management. Some discussion of new product designs for the next generation of managed care based on what does the customer (both the employer and patient) want for the future.

HMP620
Understanding the structure and management of nonprofit health organizations
Winter term(s)
3 Credit Hour(s)
Instructor(s): Banaszak-Holl, Jane
Prerequisites: Graduate Standing or PI
Nonprofit organizations face unique challenges because of their ownership, including greater needs to motivate employees through culture, to manage volunteer workforces and complex stakeholder relations within communities. This course will focus on the analysis of the goals, environmental conditions and organizational structures of specifically nonprofit health organizations, including a variety of smaller (and largely, non-health services) community-based nonprofits. This course is explicitly targeted to meet the needs of those interested in policy and those who may manage non-health services organizations.
HMP623  
Topics in Public Health Ethics  
Winter term(s)  
2 Credit Hour(s)  
Instructor(s): Jacobson, Peter  
Prerequisites: permission of instructor  
This course introduces students to the emerging field of public health ethics, the application of ethical inquiry to population health and public health policy issues. Students learn about the ethical issues surrounding topics in public health research and practice through seminar sessions with guest lecturers.

HMP625  
Health and Health Systems in the Developing World  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Margaret, Kruk  
Not offered 2005-2006  
Prerequisites: none  
This course examines the state of public health systems in developing countries in sub-Saharan Africa, Latin America, and parts of Asia in the context of global initiatives to dramatically improve health outcomes. The course will cover recent trends in health outcomes, the structure, history and performance of developing country health systems, the international players in health (including the UN and other multilateral and bilateral organizations), key constraints to improving health care delivery, and potential ways forward. This course focuses on international and national health policy as it pertains to developing countries but also deals with questions of health management and implementation of complex systems. There are wide, and in some instances growing, global disparities in health status. In some countries in southern sub-Saharan Africa, for example, the AIDS epidemic has cut 20 years from average life expectancy over the past decade while the developed world has enjoyed a boom of new health discoveries and advances. AIDS and a resurgence in malaria and TB have added to the tremendous strain on fragile health systems, which have already been ravaged by years of underfunding. Government-run health systems in developing countries, whose main role is to deliver a modest package of essential interventions for largely preventable and/or treatable conditions, are on the verge of collapse.

HMP626  
Managing & Maximizing Difference and Diversity in Healthcare Organizations  
Winter term(s)  
2-3 Credit Hour(s)  
Instructor(s): Myers, Valerie  
Prerequisites: Graduate Standing
"Managing & Maximizing Difference and Diversity in Healthcare," examines the confluence of socio-demographic diversity in the workforce and the population, the under representation of women and minorities in healthcare leadership and professional positions, and persistent racial and ethnic disparities in health and healthcare. Students will use organizational behavior and organization theory as frameworks for examining relationships between diversity and disparities in healthcare quality. Conceptually, we will begin by exploring many kinds of "difference" that influence an organization's performance including individual, functional, demographic and ideological differences. We will also review the benefits and risks of difference, giving focused attention to issues of power, conflict, culture and stereotypes. From a practical standpoint, students will conduct self-evaluations, analyze cases, participate in exercises and complete assignments that build competencies for managing diversity. At the end of the course, students will have a repertoire of concrete steps to manage and maximize difference at multiple levels including organizational policies and infrastructure; management & leadership; within and across groups; and one's own minority status. This course is highly interactive and designed to promote growth and learning through personal reflection and interpersonal interactions, as well as from traditional didactic methods.

HMP631
Health Insurance and Payment Systems
Winter term(s)
3 Credit Hour(s)
Instructor(s): Grazier, Kyle
Prerequisites: HMP 600, HMP 602, HMP 606, HMP 661 or Perm Instr
This course examines the conceptual and management frameworks for financing health care services through insurance, contracting and managed care. It analyzes past and current research on the formulation of payment techniques and the impact of reimbursement methods on consumers, providers, payers and society. The course explores the theories on which health care pricing, payment and reimbursement systems are based and the administrative and financial mechanisms through which they operate. Lectures, cases, readings.

HMP633
Pharmacoeconomics and Outcomes Research
Winter term(s)
1-2 Credit Hour(s)
Instructor(s): Smith, Dean G
Not offered 2005-2006
This course introduces the theory and application of economic analysis and outcomes research in the pharmaceutical industry. It provides an overview of the pharmaceutical industry and the role of cost, quality of life and other outcomes research data in product development and promotion. Applications from industry are presented.

HMP640
Program Evaluation in Public Health
Fall term(s)
3 Credit Hour(s)
Instructor(s): Lantz, Paula
Prerequisites: grad status
The Purpose of this course is to provide students with an understanding of the fundamentals of evaluation and research as applied to public health programs, policies and other types of interventions. The course covers impact, outcomes, process and participatory evaluation, and a number of research designs common in public health evaluation research. Students will gain skills in framing evaluation questions. In addition, students will gain skills needed to understand and critique published evaluation literature, and skills in measurement/data collection strategies. Class format includes lecture, discussion articles, and small group exercises. For final project, students will design and write an evaluation plan in the format of a proposal for funding.

**HMP643**

Individual and Group Behavior in Health Service Organizations  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Banaszak-Holl, Jane  
Prerequisites: grad status  
This course provides the knowledge and skills for understanding and effectively managing individuals and groups within health care organizations. We consider a wide variety of motivations that draw individuals to their jobs and keep them productive. We also consider why organizations form small groups and the dynamics of these groups over time. Students learn techniques for persuasive communication and conflict management, develop strategies for dealing with interpersonal problems in an organizational setting, and processes for handling work teams. Common organizational problems that students solve include choosing the right person through the hiring process, evaluating employee performance, and negotiating contracts.

**HMP644**

Marketing and Competitive Strategy in Health Care  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Calhoun, Judith  
Prerequisites: HMP 600, HMP 601 or HMP 602  
Course covers general concepts of marketing and competitive strategy applied to health care settings. Topics include assessing and understanding health consumer behavior, market segmentation and targeting, medical staff relations, forecasting service demand, new product development, product pricing and distribution, advertising and public relations, analysis of competitive environment, and strategy formulation. Potential conflicts between an organization's competitive objectives and its participation with competitors in collaborative community benefit programs are explored. In the 3 credit hour version of the course, extra emphasis is placed on methodologies for developing strategic plans.

**HMP645**

Seminar in Leadership for Changing American Healthcare  
Fall term(s)  
3 Credit Hour(s)  
Instructor(s): Warden, Gail  
Prerequisites: completion of first year requirements for HMP MPH or MHSA, or permission of instructor
This course will use four current, important topics on the national agenda to develop students' insights into how such topics evolve and are guided by professional managers and policy makers. Student teams will be formed around profession interests (e.g. provider management, insurance, government agencies). Each team will prepare two papers on each topic: (1) a background based on prior coursework and surveys of library and web resources, outlining the key issues, political positions of major stakeholders, technical issues, and actions proposed by others (2) a plan of action for a specific agency or organization, with agenda, timeline, types of participation, goals, and achievement issues. These papers will be submitted in writing for grading, and presented to classmates for discussion. A national leader concerned with the issue will join the seminar for the third session on each topic.

HMP652
Health Law
Fall term(s)
3 Credit Hour(s)
Instructor(s): Jacobson, Peter
Prerequisites: HMP 600, 601
The purpose of this course is to introduce public health students, especially those interested in health administration and management, to the legal issues they are likely to face in managing a health care organization. The goals of the course are for students to understand generally: the functions of and interaction between courts, legislatures, regulators; the role of the courts in health policy and health care delivery; how to recognize legal issues and communicate with attorneys; how law will affect students as strategic thinkers in health care positions; how to apply basic tort and contract principles; and how to apply basic corporate law and antitrust principles. Specific topics will vary, but will usually include: liability; health care institutions as corporations; antitrust; fraud and abuse; privacy and confidentiality; regulatory oversight of health care system; legal requirements for access to health care; nondiscrimination; general employment issues; and conflicts of interest.

HMP653
Law and Public Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Jacobson, Peter
Prerequisites: Grad Status
The purposes of this course are to examine the legal context of the relationship between the individual and the community, and to understand public health regulation in the context of a marker-driven system. The goals of the course are for students to understand generally: constitutional authority and limits on governmental intervention in public health (i.e., individual rights vs. societys rights); the functions of and interactions between courts, legislatures, and regulators; how law will affect students as strategic thinkers in public health positions; how to recognize legal issues and communicate with attorneys; and the process of public health regulation and potential legal barriers to public health strategies. Specific topics will vary, but will usually include: the nature and scope of public health authority; constitutional constraints on public health initiatives; tobacco control; youth violence; injury prevention; the spread of communicable disease; and regulating environmental risk.

HMP654
Operations Research and Control Systems
Fall term(s)
3 Credit Hour(s)
Instructor(s): Mendez, David
Prerequisites: Biostat 503 or Biostat 553 or equiv and Grad Status
Provides rational framework for decision making for both operating and control systems in the hospital environment. Emphasizes basic modeling techniques and examples of actual hospital applications. Aims at thorough understanding of concepts of total value analysis, objective function formation, and exception reporting. Students become familiar with operations research techniques of inventory modeling, queuing, computer simulation, PERT/CPM, mathematical programming, and quality control. Presentation emphasizes objectives, constraints, and required assumptions of each of these techniques as applied to specific hospital examples.

**HMP655**
Decision Making Models in Health Care
Winter term(s)
3 Credit Hour(s)
Instructor(s): Mendez, David
Prerequisites: HMP654
Application of computer models for decision making in the health care sector. The students will be exposed to Monte Carlo Simulation, Process Simulation, Multiple Regression analysis, Discriminant Analysis, Project Management, Inventory Control, Integer Linear Programming, and Multi-Criteria Optimization. Use of computers and spreadsheet modeling will be emphasized throughout the class.

**HMP657**
Ethical Issues in Health Services Management
Winter term(s)
1 Credit Hour(s)
Instructor(s): Griffith, John R
Prerequisites: Second Year HMP
A review of ethical and moral issues commonly faced in health care management, with emphasis upon understanding of diverse viewpoints, methods of resolving conflicting moral obligations, and developing abilities to make moral decisions.

**HMP658**
Governance and Leadership in Non-Profit Health Organizations
Fall term(s)
3 Credit Hour(s)
Instructor(s): Alexander, Jeffrey A
Prerequisites: HMP 652 and (HMP 620 or HMP 616 or HMP 640), or permission of instructor.
In nonprofit health organizations, boards of directors play far more important roles than in business firms. Because nonprofits have no owners, boards must simultaneously represent the public and the interests of donors and members, while at the same time serving as links to a variety of stakeholders, including funders, clients, beneficiaries, professional and industry groups, and the communities in which they are located. Boards have ultimate authority to interpret organizational mission, to define goals, to hire and fire staff, and to allocate resources. Governing boards are held accountable when nonprofit organizations run into trouble. This course provides critical and practical understanding of the leadership role of nonprofit governance for managers, board members, and policy makers. It examines the legal characteristics of nonprofit entities, mechanisms of internal and external accountability, the governance implications of organizational structure, the powers and responsibilities of governing boards, factors affecting decision making, board/staff relations, the dynamics of board governance, and the role of stakeholders in governance. Readings include articles and monographs from the fields of anthropology, law, management, organizational behavior, and sociology, as well as cases and pertinent materials from the print media. Students are expected to participate in class discussions, to make oral presentations, to write three short papers, and to write a case study based on an actual organization.

HMP659
Health Care Regulation
Winter term(s)
2 Credit Hour(s)
Instructor(s): Jacobson, Peter
Prerequisites: HMP 601 or PI
This is a seminar on regulating the health care system. Initial sessions will cover administrative law and regulation of the health care industry, implementation of regulations, the economics of regulations, and the politics of regulations. After the introductory sessions, each student will select a particular topic for class discussion. The student, in conjunction with the instructors, will select the reading materials and will lead the class discussion. Topics will vary based on student interest. Previous topics have included: fraud and abuse; ERISA reform and patients’ rights; research integrity and IRB issues; medical record privacy; pharmaceutical regulation; and the future of public health.

HMP660
Microeconomic Theory I
Fall term(s)
3 Credit Hour(s)
Instructor(s): Chernew, Michael and Hirth, Richard
Prerequisites: Grad Status
Concepts and methodology of microeconomics including demand, supply; underlying concepts of consumer and production analysis; decision making under risk and uncertainty; income distribution; market imperfections and public goods.

HMP661
Economics of Health Services (Econ 438)
Winter term(s)
3 Credit Hour(s)
Instructor(s): Chernew, Michael and Hirth, Richard
Prerequisites: HMP 660, Econ 401, SPP 555 or Perm Instr
This course gives students experience analyzing health management and health policy issues using economic tools. The basic framework of economics is used to analyze the behavior of consumers, insurers, physicians, and hospitals. The tools of economics are applied to both managerial issues such as pricing decisions and policy issues such as the medically uninsured. By the end of the course, students should be able to assess the potential impact of hypothetical changes in the health care system on costs and access as well as on providers and consumers.

**HMP662**
Topics in Health Economics

Fall term(s)
3 Credit Hour(s)
Instructor(s): McLaughlin, Catherine G

**Not offered 2005-2006**

Prerequisites: HMP 663, HMP 610, or Perm. Instr.
The focus of this seminar is the use of economic principles to evaluate private and public health care policies. Students read articles and write several short papers on a variety of topics, including health insurance reform, consumer choice and the role of information, the economics of mental health and substance abuse, sin taxes, and the role of technology in health care costs. Students are also required to write a longer paper on a health economics topic of their choice.

**HMP663**
Economics of Health Management and Policy

Winter term(s)
3 Credit Hour(s)
Instructor(s): Chernew, Michael and Hirth, Richard

Prerequisites: HMP 600 and HMP 660
This course gives students experience analyzing health management and health policy issues using economic tools. The basic framework of economics is used to analyze the behavior of consumers, insurers, physicians, and hospitals. The tools of economics are applied to both managerial issues such as pricing decisions and policy issues such as the medically uninsured. By the end of the course, students should be able to assess the potential impact of hypothetical changes in the health care system on costs and access as well as on providers and consumers.

**HMP664**
Applied Health Policy Analysis

Winter term(s)
3 Credit Hour(s)
Instructor(s): Eisenberg, Daniel

Prerequisites: HMP 601, HMP 610 or HMP 661 and HMP 685; or Perm Instr
HMP 664 is the capstone course for HMP masters students who have a strong interest in health-related policy. The course will focus on health policy issues from a government perspective, but will also emphasize the application of analytical skills to a broader range of contexts. Students will draw upon the breadth of skills and knowledge they have acquired in other courses in the program. The main goal is for students, upon completion of the course, to be competent, confident, and excited to conduct full-scale policy analyses related to a broad range of health issues.

**HMP665**
Computer Information and Decision Support Systems in Health Care
Winter term(s)
3 Credit Hour(s)
Instructor(s): Calhoun, Judith
Prerequisites: HMP 600, 601 or 602
Covers the strategic management and utilization of computer-based systems in the delivery of health services. Topics include: principles and methods of systems analysis; definition of management information needs; design of information systems; e-health and e-commerce system trends; health care information systems applications areas; large-scale regional information systems; system selection, implementation and evaluation; regulatory requirements; and organizational implications of expanding computer usage, and the positioning of information systems for competitive advantage.

HMP667
Advanced Seminar in Health Care Financial Management
Winter term(s)
3 Credit Hour(s)
Instructor(s): Grazier, Kyle
Not offered 2005-2006
Prerequisites: HMP Student or Perm of Instr. and HMP 607
This course builds on the language, theories and methods of finance and accounting through the study of financial transactions involving health care and other industries. Topics include financing alternatives, valuations, financial forecasting, risk management, entreprenuership and sustainable growth. Among the transactions studied are corporate lending, venture capital acquisition, and public offerings. Cases, readings, lectures.

HMP669
Database Systems and Internet Applications in Health Care
Fall term(s)
3 Credit Hour(s)
Instructor(s): Mendez, David
Prerequisites: Grad status
This course covers relation database theory and database-web systems with applications to health care. The students are expected to develop a working knowledge of design, implementation, administration and maintenance of small to medium relational database systems. The students will also be exposed to current technology for deployment, use and administration of relational databases through the Internet.

HMP671
Cross-national Comparisons of Aging and Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Liang, Jersey
Not offered 2005-2006
Prerequisites: None
This course examines aging and health within a global context. The focus will be placed primarily on old age support systems in the United States and several other developed nations (e.g., Canada, Germany, Japan, and United Kingdom). Specifically, comparisons across these nations will be made in: (a) population aging and health, (b) acute care, (c) long-term care, and (d) family-based support, and (e) financial security in old age. Population aging and health in developing nations (e.g., China, India) will be reviewed in light of the lessons learned in the developed countries.

HMP675
Sociology of Medicine
Fall term(s)
3 Credit Hour(s)
Instructor(s): Liang, Jersey
Not offered 2005-2006
This course provides an overview of sociological approaches to the analysis and understanding of health and health care issues. Key topics include (a) social construction of health and sickness, (b) social structure and health, (c) health professions, (d) social organization of health care, and (f) social change, health, and health care. Applications of sociological concepts and methods to health management and policy will be emphasized. To foster a global perspective, health and health care in U.S. will be contrasted with those in other nations.

HMP677
Health Care Organization: An International Perspective
Fall term(s)
3 Credit Hour(s)
Instructor(s): Liang, Jersey
Prerequisites: HMP or Global Health IC
The American pursuit in making its health care system more equitable, effective, and efficient has largely been based on domestic health services research and policy analysis. Although the health care system in each nation is somewhat unique to its culture and history, the issues each faces are remarkably similar. Nations can learn a lot from one another in meeting these challenges. This course examines health care systems in approximately eight developed and developing nations (e.g., United States, Germany, Japan, Canada, United Kingdom, China, Mexico, and Kenya). In particular, comparisons will be made across these nations in the following areas: (a) population health, (b) health care financing and control, (c) health professionals and their patients, (d) health care organization, and (e) health system performance and reform strategies. Understanding how health care is delivered around the world will lead to a better appreciation of the relative merits and limitations of various systems, and will yield many useful insights in management and policy decision making. At the completion of this course, students will be expected to: 1. Describe the global burden of disease and health disparities, 2. Understand how health care is organized and financed in selected developed nations, 3. Learn the strengths and weaknesses of these systems, 4. Know the recent health care reforms enacted in these countries and their results, and 5. Apply the knowledge of international systems to the analysis of current issues in health policy and management. The course will be taught by a combination of lectures, in-class exercises, roundtable discussions, and site visits. Effective interventions in health care and related management and policy issues will be emphasized.

HMP681
Enhancing Physician Performance
Winter term(s)
This course will introduce students to the principles of medical management and enhancing physician performance. The class will emphasize techniques and perspectives that optimize a manager's ability to lead and cooperate with these important providers, such as: hiring physicians, managing physicians with disruptive behavior, improving outcomes, disease management, compensating physicians, using case mix and severity adjustment, clinical pathways, practice profiling, clinical information systems, quality and change management, creating an efficient work environment, benchmarking, physician leadership, and legal aspects of managing physicians.

HMP682
Case Studies in Health Services Administration
Winter term(s)
3 Credit Hour(s)
Instructor(s): Griffith, John R
Prerequisites: Second year HMP masters candidate or Perm Instr
Analysis of cases dealing with administrative and policy issues in health services, offered as the integrative capstone course for persons completing the MHSA or MPH in management in the Department of Health Management and Policy. Emphasis is on student problem solving in ill-defined, multi-faceted problems taken from actual situations. These problem-solving experiences in the class with student written and oral presentations constitutes one of the final competency assessment options for masters students in the Department of Health Management and Policy. On Job/On Campus students choose between HMP664 and HMP682.

HMP683
Quality of Care
Fall term(s)
3 Credit Hour(s)
Instructor(s): Wyszewianski, Leon
Prerequisites: HMP 601 or HMP 602
Focuses on the concepts and practices of quality of care assessment, control, and improvement in health care delivery settings. Designed to provide an in-depth understanding of basic concepts and frameworks and of their applicability and relevance in specific situations. Covers major approaches to quality of care assessment, improvement, and control currently in use in the health care field.

HMP684
The Politics of Health Care Policy
Winter term(s)
3 Credit Hour(s)
Instructor(s): Greer, Scott
Prerequisites: MHSA student or PI
Analysis of the process of health care policy formation, with emphasis on institutional determinants of health policy including congress, the presidency, the budget, interest groups, the bureaucracy and models of the policy process. Includes a course-long policy analysis project demonstrating how to do policy analysis, and producing expertise on a policy topic chosen by the student. Examples emphasize impacts upon, and activities of, key actors in health care delivery system.
**HMP685**
The Politics of Health Policy  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Greer, Scott  
Prerequisites: Grad Standing  
Analysis of the process of health care policy formation, with emphasis on institutional determinants of health policy including congress, the presidency, the budget, interest groups, the bureaucracy and models of the policy process. Includes a course-long policy analysis project demonstrating how to do policy analysis, and producing expertise on a policy topic chosen by the student. Examples emphasize the role of institutions and key actors in making health policy choices.

**HMP689**  
Seminar on Issues of Long-Term Care Policy and Administration  
Winter term(s)  
3 Credit Hour(s)  
Instructor(s): Fries, Brant E  
Prerequisites: HMP 600 or equiv - second year preferred  
This seminar addresses current topics in the care of the elderly and other long-term care recipients in both institutional and non-institutional settings. The primary goal is to develop critical insight into a variety of current, multi-faceted issues employing case studies, lectures, and student presentations. A series of modules, of varying length, will address major issues chosen in part from: nursing home payment systems design, quality assurance in nursing homes, cross-cultural comparisons of long-term care. These topics will be considered using background techniques from management strategic planning, finance, organizational theory, statistics, etc. Each term, topics to be discussed will be determined collaboratively by faculty and students.

**HMP690**  
Readings in Health Management and Policy  
Fall Winter Spring-Summer term(s)  
1-4 Credit Hour(s)  
Instructor(s): Staff  
Prerequisites: Grad Status and Perm Instr  
Directed readings or research on selected topics and problems relevant to health management and policy. May be elected more than once.

**HMP693**  
Mental Health Policy in the United States  
Fall term(s)  
2-3 Credit Hour(s)  
Instructor(s): Eisenberg, Daniel  
Prerequisites: Grad Status
Students in this course will analyze mental health policies in the U.S. The class will meet once a week and have an interactive seminar format. We will approach various topics from both descriptive and analytical perspectives. Examples of topics include mental health insurance parity, the integration of mental health services and other health services, delivery of services in schools, delivery of services in prisons, and incentives influencing the balance between medication and therapy.

**HMP695**
Public Health Policy Issues in Womens Health
Winter term(s)
3 Credit Hour(s)
Instructor(s): Rogers, Juliet
Prerequisites: Grad Status
This course will explore current public health policy issues in U.S. womens health, providing students will the skills necessary to analyze womens health issues from a policy perspective. Current policy issues will be identified and analyzed for a wide variety of womens health issues. In addition, the course will provide an overview of gender differences in morbidity and mortality across the life course, theories of explanations for these differences, and issues related to gender and biomedical research.

**HMP697**
Physician Managers in Managed Care
Fall term(s)
1 Credit Hour(s)
Instructor(s): Weiner, Lowell
**Not offered 2005-2006**
Prerequisites: Grad Status
This course will introduce the student to the role of the medical director in managed care organizations. Focus will be on the medical director's responsibilities in the areas of benefits administration, utilization management, quality management, credentialing, physician relations, planning and budget.

**HMP800**
Doctoral Seminar on Health Services System I
Fall term(s)
2 Credit Hour(s)
Instructor(s): Alexander, Jeffrey A
Prerequisites: HMP 600, HMP 601 or equiv
Intensive examination of selected topics in HMP 600. For doctoral students in Health Services Organization and Policy.

**HMP801**
Doctoral Seminar of Health Services System II
Winter term(s)
2 Credit Hour(s)
Instructor(s): Wyszewianski, Leon
Prerequisites: HMP800
Intensive examination of selected topics in HMP 601. For doctoral students in Health Service Organization and Policy.
HMP809
Logic and Methods of Medical Care Research(Psych 809)
Winter term(s)
3 Credit Hour(s)
Instructor(s): Alexander, Jeffrey A
Principles of the scientific method and the logic of the research process. The logic and methodologies of problem formulation, development of hypotheses and objectives, research design, sampling, operationalism and measurement, coding and analysis strategies. Primarily for doctoral students in Health Services Organization and Policy.

HMP815
Readings in Medical Care
Fall Winter Spring Spring-Summer Summer term(s)
1-4 Credit Hour(s)
Instructor(s): Staff
Prerequisites: Perm Instr
Directed readings in special areas. May be elected more than once. Primarily for doctoral students in Health Services Organization and Policy.

HMP826
Applied Econometrics in Health Services Research
Fall term(s)
3 Credit Hour(s)
Instructor(s): Chernew, Michael
Not offered 2005-2006
Prerequisites: Econ571
Application of advanced econometric techniques to problems in the health services field. Focuses on selected econometric topics, including pooled cross-section/time-series data, limited dependent variables, multi-equation systems, and translog cost functions. General discussion of appropriate techniques, with emphasis on students applying these techniques, using a variety of data sets. Series of computer exercises and empirical term paper required.

HMP827
Advanced Seminar in Health Care Economics
Winter term(s)
3 Credit Hour(s)
Instructor(s): Hirth, Richard
Not offered 2005-2006
Prerequisites: Econ 501 and Perm Instr
Analysis of the application of advanced economic theory to problems in the health services field. Focuses on several health economics issues, including topics of current policy interest as well as topics for which the application of economic theory has been more fully explored. Classes will include a general discussion of the appropriate economic theory and empirical evidence and a critical review of the relevant health economics literature. Students must read approximately 30-40 articles and write several short papers.
HMP833
Research Topics in Sociology and Health Care Organization
Fall Winter term(s)
3 Credit Hour(s)
Instructor(s): Staff
Prerequisites: HMP doctoral students or P.I.
HSOP Program requirements. A topic in sociology and health care organization-policy is selected each term for detailed critical, theoretical, and methodological analysis leading to development, in class, of propositions aimed at advancing scientific status of the area of inquiry. Analysis and development of content follows logic of the research paradigm. Required of students with a sociology cognate in the doctoral program in Health Services Organization and Policy

HMP835
Research Practicum
Fall Winter Spring-Summer term(s)
3-6 Credit Hour(s)
Instructor(s): Staff
Prerequisites: HMP 809, Perm Instr
The purpose of this course is to allow each student, early in his or her doctoral career, to gain experience in the actual performance of health services research. The experience will enable students to build sound research skills and to gain knowledge of the nature of inquiry in their discipline as well as in the field of health services research. Each student in the HSOP program is expected to elect a total of 6 credits in HMP 835.

HMP840
Integrative Seminar in Health Services Organization and Policy
Winter term(s)
3 Credit Hour(s)
Instructor(s): Chernew, Michael and McLaughlin, Catherine G
Conceptual and methodological problems in the study of health services organization. Use of the scientific method and statistical design to study the provision and utilization of health services. Development and use of models from the social sciences as conceptual sources. For doctoral students in Health Services Organization and Policy.

HMP990
Dissertation/Precandidates
Fall Winter Spring Spring-Summer Summer term(s)
1-8 Credit Hour(s)
Instructor(s): Staff
Election for dissertation work by doctoral students not yet admitted to status as candidate.

HMP995
Dissertation Research for Doctorate in Philosophy
Fall Winter Spring Spring-Summer Summer term(s)
8 Credit Hour(s)
Instructor(s): Staff
Election for dissertation work by doctoral students admitted as candidates