BIOSTATISTICS

BIOS 6310 Practical Clinical Research Informatics **3.0 cr.**
Restriction: Offered in variable terms and years.
This course provides students with hands on experience in clinical research informatics involving secondary use of electronic health record (EHR) data, clinical informatics databases and tools, and basic clinical data science as preparation for more advanced informatics or data science coursework.

BIOS 6420 Data Science and Analytics of Continuous Clinical Data **3.0 cr.**
Cross-listed with BIOE 5420. Restriction: Offered in variable terms and years. Prerequisites: Calculus, Probability Theory, Linear Algebra, some knowledge of differential equations, physiology, regression and signal processing, programming in Matlab, Python or R.
The central focus of this course is on the generation, modeling, and analysis of data collected in a clinical or biomedical context, with an emphasis on temporal analysis. Analysis techniques will be anchored to solving real-world clinical and biomedical problems.

BIOS 6601 Applied Biostatistics I **3.0 cr.**
(Summer, Fall)
Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of: multiple and logistic regression and survival analysis.

BIOS 6602 Applied Biostatistics II **3.0 cr.**
(Spring, Fall) Prereq: BIOS 6601
A continuation of BIOS 6601 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively.

BIOS 6603 Statistical Computing – SAS **1.0 cr.**
(Summer) Prereq/Coreq: BIOS 6601 or equivalent.
This course will emphasize statistical analysis and data interpretation through use of the SAS statistical computing package. Instruction will be provided through laboratory exercises and interactive demonstrations.

BIOS 6611 Biostatistical Methods I **3.0 cr.**
(Fall) Restrictions: Enrollment in ColoradoSPH PhD, MS or DrPH program. Prereq: Calculus 1 with at least a B; a previous course in applied probability and statistics with at least a B; coursework or experience with a statistical package (e.g. SAS, R, Stata, SPSS); linear algebra is highly recommended and will be used extensively in the course; or permission of instructor. Students without this preparation, or seeking a less challenging course, should consider BIOS 6601/6602
This course in applied statistics covers simulation, random sampling, nonparametric inference for the two-sample location problem; ANOVA, ANCOVA, and multiple linear regression. Matrix notation, R and SAS are used.

BIOS 6612 Biostatistical Methods II **3.0 cr.**
(Spring) Prereq: BIOS 6611
This is a continuation of BIOS 6611, covering univariate linear modeling and emphasizing multiple regression and analysis of variance. Logistic regression and methods for correlated data are also covered. Matrix algebra and the statistical package SAS will be used.

BIOS 6618 Advanced Biostatistical Methods I **4.0 cr.**
(Fall) Prereq: 3 semesters of calculus (i.e. differential, integral, multivariable), an introductory course in applied probability and/or statistics, and matrix/linear algebra
First of a two-semester applied statistics sequence designed to equip students with a practical knowledge of the quantitative methods most frequently used in medical research. This course is an introduction to applied

biostatistics. Concepts will be illustrated using examples in the fields of medicine, biology, epidemiology and public health. Written and graphical presentation and interpretation of methods and results will be emphasized.

BIOS 6619 Advanced Biostatistical Methods II **4.0 cr.**
(Spring) Prereq: 3 semesters of calculus (i.e. differential, integral, multivariable), an introductory course in applied probability and/or statistics, and matrix/linear algebra
Second of a two-semester applied statistics sequence designed to equip students with a practical knowledge of the quantitative methods most frequently used in medical research. This course is to develop comfort applying and understanding the mechanisms behind common biostatistical methods. Concepts will be illustrated using examples in the fields of medicine, biology, epidemiology and public health. Written and graphical presentation and interpretation of methods and results will be emphasized.

BIOS 6621 Statistical Consulting **2.0 cr.**
(Fall) Coreq: BIOS 6611 or consent of instructor/program director.
Students will gain experience with statistical consulting and common statistical problems and techniques encountered in consulting through a combination of instruction, real examples, and consultations with investigators. Emphasis will be on methods for effective communication with investigators.

BIOS 6623 Advanced Data Analysis **4.0 cr.**
(Spring) Prereq: BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612 or permission of instructor.
This course teaches the students how to be effective collaborators. Students will learn to modify project hypotheses to be statistical hypotheses. The students will identify and perform the appropriate data analyses and communicate their analyses both verbally and in writing.

BIOS 6624 Advanced Statistical Methods and Analysis **4.0 cr.**
(Spring) Prereq: BIOS 6611, BIOS 6612, BIOS 6631, BIOS 6632 or permission of instructor.
This second-year graduate level biostatistics/data science course develops advanced data analysis and collaboration skills. The course is based on five projects using methodologies such as Baysian analysis, simulation, correlated data, missing data, and study design for grant development.

BIOS 6628 Quantitative Methods in Community Health **3.0 cr.**
(Fall) Prereq: BIOS 6601 and 6602 or equivalent. Cross-listed: CBHS 7010 Restriction: Offered in even years.
Covers statistical approaches commonly used in behavioral sciences research, including reliability analysis, exploratory and confirmatory factor analysis, path analysis, structural equation modeling, and advance modeling procedures. Students will analyze data using statistical software, interpret results, and write summaries of findings.

BIOS 6629 Applied Survival and Longitudinal Data Analysis **3.0 cr.**
(Fall) Prereq: BIOS 6601 and 6602 or BIOS 6611 and 6612 and permission of instructor. Restriction: Offered in variable years.
This course will focus on the application of regression modeling to time-to-event and longitudinal data. Descriptive and inferential methods will be developed for each type of data with an emphasis on graphical inspection at all stages of analysis.

BIOS 6631 Statistical Theory I **4.0 cr.**
(Fall) Prereq: Differential and integral calculus
This course presents an introductory coverage of the theory of discrete and continuous random variables and applications to statistical problems. Topics include probability theory, transformations and expectations, common families of distributions, multiple random variables, and properties of a random sample.

BIOS 6632 Statistical Theory II **4.0 cr.**
(Spring) Prereq: BIOS 6631 and differential and integral calculus
This course covers theoretical and applied fundamentals of statistical inference. The course is a continuation of BIOS 6631. The primary topics include point estimation, hypothesis testing, interval estimation and asymptotic methods.

BIOS 6635 Applied Artificial Intelligence in Public Health Practice and Research **3.0 cr.**
Restriction: Offered in variable terms and years. Cross-listed with HSMP 6635.
This course explores the foundational concepts of AI focusing on Large Language Models (LLMs) and Genrerative AI, without requiring prior programming or advanced mathematical knowledge. The course

emphasizes practical applications, equipping students to leverage existing AI tools for tasks relevant to public health research and practice.

BIOS 6640 AI Analytics: R for Data Science **3.0 cr.**
Restriction: Offered in variable terms and years.
Statistical programming in R, including data management, subscripting, loops, functions, packages, graphics. Concepts and methods for reproducible research will be covered as well as computationally intensive statistical methods. These methods are used to analyze data and present results.

BIOS 6641 Causal Inference **3.0 cr.**
Prerequisite: BIOS 6611 or BIOS 6602 or permission of instructor; knowledge of R. Restriction: Offered in variable terms and years.
Basic knowledge of and analytic skills in causal inference. Topics include potential outcomes framework for causal inference; experimental and observational studies; identification assumptions for causal parameters; instrumental variable method; regression discontinuity design; propensity score based methods and causal mediation analysis.

BIOS 6642 AI Analytics: Python for Data Science **3.0 cr.**
Restriction: Offered in variable terms and years. Credit will only be given for either this course or BIOS 6682.
This first course in programming using Python covers basic concepts such as variables, data types, iteration, flow of control, input/output, and functions and advanced concepts such as object oriented programming. Statistics related examples, homework and projects may be used.

BIOS 6643 Analysis of Longitudinal Data **3.0 cr.**
(Fall) Prereq: BIOS 6632 and BIOS 6612 or permission of instructor
Theory and application of models appropriate for clustered and longitudinal data are studied. Models for different types of outcome variables (e.g., normal, Poisson, binomial) are covered, with an emphasis on linear mixed models for normal outcomes.

BIOS 6644 Practical Data Wrangling **2.0 cr.**
Restriction: Offered variable terms and years.
Data Wrangling is the process of getting data into a format which is useful for science. This course will provide students with a diverse set of tools, strategies and practices which can dramatically reduce the pain and wasted time often associated with wrangling and how to leverage the innumerable free resources available to everyone.

BIOS 6645 Predictive Analytics **3.0 cr.**
Prereq: BIOS 6611 Prereq or Coreq: BIOS 6612 Restriction: Offered in variable terms and years.
This course will focus on the development, evaluation and validation of prediction models using observational studies and data, with an emphasis on both model-based and algorithmic approaches. In addition to regular assignments, students will apply their knowledge by developing, evaluating and validating models in three projects.

BIOS 6646 Survival Analysis **3.0 cr.**
Pre/Coreq: BIOS 6612 and BIOS 6632 or instructor permission. Restriction: Offered in variable terms and years.
This course will introduce the statistical treatment of time-to-event data with applications to biology, medicine, and public health. It focuses on understanding key methodologies through a strong theoretical foundation, covering nonparametric group comparisons, semi-parametric regression models, parametric models, and state-of-the-art methods for survival analysis. Prerequisites include knowledge of distribution theory, calculus, linear algebra, and programming in R.

BIOS 6648 Design and Conduct of Clinical Research **3.0 cr.**
(Spring) Prereq: BIOS 6601 or BIOS 6611 or instructor permission.
Design and conduct of clinical research studies. Intended for non-biostatistics students. Topics include specifying the research question, study endpoints, study populations, study interventions, sample size evaluation, and choice of comparison groups. Common study designs and methods for study conduct are described.

BIOS 6649 Clinical Trials: Statistical Design and Monitoring **3.0 cr.**
Pre/Coreq: BIOS 6612 or instructor permission. Restriction: Offered in variable terms and years.
Statistical and scientific design of clinical trials. Intended for biostatistics graduate students. Topics include scientific and statistical aspects of the research question, endpoints, treatments, sample size evaluation. A wide range of trial designs including group sequential and adaptive trial designs are covered.

BIOS 6651 BIOS MS Research Paper **1.0-6.0 cr.**
(Spring, Summer, Fall) Masters research paper in Biostatistics is completed under this course.

BIOS 6655 Statistical Methods for Genetic Association Studies **3.0 cr.**
Prereq: BIOS 6611, BIOS 6612 (can be co-req) or equivalent graduate level (bio)statistics course with instructor consent. Proficiency in coding in statistical software R Restriction: Offered in variable terms and years.
This course is designed to give an introduction to statistical methods in genetic association studies. Topics include quantitative and population genetics concepts relevant to genetic association studies, design strategies, and analysis methods for case-control and family data.

BIOS 6660 Analysis of Genomic Data using R and Bioconductor **3.0 cr.**
Prereq/Coreq: BIOS 6602 or BIOS 6612, or consent of instructor. Restriction: Offered in variable terms and years.
This course provides students with hands on experience in solving real life biological problems using the statistical software R and Bioconductor. Students will work and communicate with participating researchers and clinicians on their case studies of genomics data.

BIOS 6670 Special Topics: Biostatistics **1.0-3.0 cr.**
(Spring, Summer, Fall) Special interest areas of current biostatistics research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check with CSPH website for offerings and topics for this course each semester.

BIOS 6680 Data Management Using SAS **3.0 cr.**
(Fall) Students will learn how to use SAS software for data management to prepare data for analyses. Main topics include importing and exporting data, variable and dataset manipulations. Introductions to producing reports, basic statistics, figures and SAS macros are also covered.

BIOS 6681 Structured Query Language Using SAS PROC SQL **1.0 cr.**
Restriction: Offered in variable years and terms. Prereq: Students should be able to submit SAS programs, create and access SAS data sets and be familiar with logical operators.
This course will cover how to use SQL to query data, combine data vertically using set operators and horizontally using joins. Additional topics include incorporating subqueries and how to create and manage tables, views and indexes.

BIOS 6682 Fundamentals of Python Programming **1.0 cr.**
Restriction: Offered in variable years and terms. Credit will only be given for either this course or BIOS 6642.
This course provides an introduction to Python programming language. Students are introduced to core programming concepts such as variables, types, data structures, conditionals, loops, and functions. This hands-on course includes an overview of the several tools available for writing and running Python.

BIOS 6685 Introduction to Public Health Informatics **3.0 cr.**
Restriction: Offered in variable terms and years.
Survey course explores public health informatics topics such as current public health informatics initiatives, data sources, public health information systems, standards, health information exchange, system development/procurement, threats to information security and privacy, and decision support in the public health context.

BIOS 6840 Independent Study for MPH in Biostatistics **1.0-3.0 cr.**
(Spring, Summer, Fall) Course Restrictions: Open only to MPH students; Department consent required
Faculty directed independent study for MPH students in topics related to biostatistics.

BIOS 6841 Independent Study for MS in Biostatistics **1.0-3.0 cr.**
(Spring, Summer, Fall) Course Restrictions: Open only to MS students or permission of instructor.
Resources of the program are available to those MS students who elect to carry out research in chosen topics related to biostatistics. A faculty member will provide guidance throughout the project.

BIOS 6950 Masters Thesis: Biostatistics **1.0-6.0 cr.**
(Spring, Summer, Fall) Biostatistics Master thesis work is completed under this course.

BIOS 6990 MPH Capstone Preparation - BIOS **1.0 cr.**
(Fall) Prerequisite or Co-requisite: BIOS 6623 or BIOS 6629 or permission of instructor.
MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

BIOS 7645 PhD Predictive Analytics **3.0 cr.**
Prereq: BIOS 6611, BIOS 6612, BIOS 6623, BIOS 6631, BIOS 6632. Restriction: Offered in variable terms and years. Course is an elective for PhD Biostatistics students.
This course will focus on the development, evaluation and validation of prediction models using observational studies and data, with an emphasis on both model-based and algorithmic approaches. Students will develop, evaluate and validate models in 3 projects. Students should be very familiar with programming in R.

BIOS 7659 Statistical Methods in Genomics **3.0 cr.**
(Fall) Prereq: BIOS 6611/6612 or BIOS 6631/6632 or permission of instructor. Restriction: Offered in variable years.
Analysis of genomic data is an integral component of biomedical research. This course will give an introduction to problems in genomics and review both the pioneering and more recent statistical methods developed for analyzing expression data and molecular sequences.

BIOS 7670 Advanced Special Topics - Biostatistics **1.0-3.0 cr.**
(Spring, Summer, Fall) Advanced special interest areas of current biostatistics research and practice are presented. The course format is lecture and discussion or seminar. Check the CSPH Website for offerings and topics for this course each semester.

BIOS 7710 Practical Pedagogy for Effective Instruction **1.0 cr.**
(Fall) This course is designed to help students develop the skills needed to teach and communicate effectively. It includes a focus on theory: functional pedagogy and general principles of teaching and learning. It also includes hands-on topics such as designing syllabi, lectures, assessments, and approaches to grading.

BIOS 7712 Statistical Methods for Correlated Data **1.0 cr.**
(Spring) Prereq: BIOS 6643. Restriction: Offered in variable years.
This course will cover statistical models and methods for serially correlated data, including autoregressive models, Markov models, and Markov chain Monte Carlo methods.

BIOS 7713 Statistical Methods for Missing Data **1.0-2.0 cr.**
Prereq: BIOS 6643. Restriction: Offered in variable terms and years.
This course covers methodological research being carried out for longitudinal studies with missing data. Topics may include missing data mechanisms, non- ignorable missing data, multiple imputation, mixture models and sample size determinations. 1 credit or 2 credit course versions offered in variable years.

BIOS 7714 Advanced Statistical Computing **3.0 cr.**
Prereq: BIOS 6612 and BIOS 6632, or permission of instructor. This course is intended for students in the Biostatistics PhD program. Restriction: Offered in variable terms and years.
This course covers the theory & implementation of estimation algorithms used in statistical analysis. Possible topics: numerical analysis (quadrature), optimization (Newton0Raphson, EM algorithm, stochastic optimization), and simulation (pseudo-random numbers, rejection sampling, Markov chain methods).

BIOS 7715 Stochastic Modeling **2.0 cr.**
Prereq: BIOS 6643 and BIOS 6632 or permission of instructor. Restriction: Offered in variable terms and years. This course is intended for Biostatistics PhD students.
This course covers theory, application and software for stochastic models commonly used in health sciences, including time to event, recurrent event, multi-type recurrent event, and multi-state models.

BIOS 7717 Bayesian Biostatistical Methods **3.0 cr.**
Prereq: BIOS 6612 and BIOS 6632 or permission of instructor. Restrictions: Instructor consent required. Offered in variable terms and years.
This course will introduce students to modern Bayesian statistical modeling and inference. Topics include a comparison of frequentist and Bayesian approaches, Markov Chain Monte Carlo (MCMC) methods for simulating posterior distributions, inference for regression, hierarchical models and mixed models.

BIOS 7718 Introduction to Biomedical Image Analysis **3.0 cr.**
Prereq: BIOS 6611 or BIOS 6612, linear algebra, experience with Python, Matlab/Octave or permission of instructor. Restriction: Offered in variable terms and years.
This course will provide students with the computational skills to tackle a biomedical image analysis problem. Students will also improve their Python coding skills, present scientific papers and participate in scientific discussions.

BIOS 7719 Information Visualization **3.0 cr.**
Cross-listed with CPBS 7719. Prereq: BIOS 6611 and BIOS 6612 or permission of instructor. Proficiency coding in a language suitable for developing interactive visualizations. Restriction: Offered in variable terms and years.
Information visualization studies interactive visualization techniques for analyzing abstract data. This course introduces design, development, and validation approaches with applications in various biological and biomedical domains.

BIOS 7720 Applied Functional Data Analysis **2.0 cr.**
Prereq: BIOS 6612, BIOS 6632 and programming skills in R or permission of instructor. A background in longitudinal data analysis (BIOS 6643) is strongly encouraged but not required. Restriction: Offered in various years and terms. This course is intended for Biostatistics PhD students.
An introduction to key concepts and methods in functional data analysis and their applications in public health. Topics include penalized regression, smoothing and smoothing parameter selection, generalized additive models, sparse functional data, functional regression and functional mixed effects models.

BIOS 7721 Joint Modeling of Longitudinal and Survival Data **1.0 cr.**
Prereq: BIOS 6643 or permission of instructor. Restriction: Offered in various terms and years. This course is intended for Biostatistics PhD students.
An introduction to joint modeling of longitudinal and survival data and its application in health research. Topics include linear mixed effects models, survival analysis, random effects joint model, and possibly dynamic prediction.

BIOS 7722 Model Selection **2.0 cr.**
Prereq: Biostatistics basics (e.g. BIOS 6618, BIOS 6619), linear algebra (e.g. MATH 3191), Python programming (e.g. BIOS 6642) and machine learning (e.g. BIOS 7747) or permission of instructor. Restriction: Offered in various terms and years. This course is intended for Biostatistics PhD students.
This course will cover the fundamentals and recent advances of deep learning and its applications to biomedical domains. It will include various deep learning algorithms and models, as well as cutting-edge topics such as generative artificial intelligence (AI). Students will learn how to design deep neural networks and apply them to different types of biomedical data. Students will also learn to implement deep models with Python/PyTorch, present deep learning research articles, and write scientific reports.

BIOS 7731 Advanced Mathematical Statistics I **3.0 cr.**
(Fall, Spring) Prereq: BIOS 6632 or equivalent. This course is intended for Biostatistics PhD students.
This course will provide the framework for understanding the formal concepts, models and assumptions in statistical theory. Topics include random variables, parameter estimation, measures of performance, hypothesis testing and asymptotic approximations.

BIOS 7732 Theory and Algorithms in Data Science **3.0 cr.**
(Spring) Prereq: BIOS 6632 and programming knowledge or equivalent, or permission of Instructor..
Restriction: Offered in even years. This course is intended for Biostatistics PhD students.
Interplay of algorithms, their implication and theoretical understanding for certain algorithms and the basics of optimization theory. Implementation/prototype algorithms in optimization theory and statistical computing.

Learning to read the literature on data science and machine learning and comprehending the algorithmic techniques utilized.

BIOS 7747 AI Analytics: Machine Learning **3.0 cr.**
Prereq: Biostatistical methods (e.g. BIOS 6611, BIOS 6612), linear algebra (e.g. MATH 3191) and Python programming (e.g. BIOS 6642), or permission of instructor. Restriction: Offered in variable terms and years. This course is intended for MS and PhD students.
Theoretical background of unsupervised and supervised machine learning methods and their application to biomedical problem solving. In addition to understanding methodological details, student will learn how to use and apply machine learning methods in Python and improve their coding skills.

BIOS 7748 AI Analytics: Deep Learning **3.0 cr.**
Prereq: BIOS 6618, BIOS 6619, Linear Algebra (e.g. MATH 3191) and Python Programming (e.g. BIOS 6642) or permission of instructor. Co-requisite: Machine Learning (e.g. BIOS 7747). Restriction: Offered in various terms and years. This course is intended for Biostatistics MS and PhD students.
This course will cover the fundamentals and recent advances in deep learning and its applications in biomedical domains. It will include a variety of deep learning algorithms and models, as well as cutting-edge topics such as generative artificial intelligence (AI). Students will learn how to design deep neural networks and apply them to various types of biomedical data. Additionally, students will learn to implement deep models using Python and PyTorch, present deep learning research articles, and write scientific reports.

BIOS 7749 Advanced Methods in the Design of Clinical Trials **3.0 cr.**
Prereq: BIOS 6624 or permission of instructor. Restriction: Offered in variable terms and years. This course is intended for PhD students.
Scientific and statistical design of clinical trials including the scientific parameterization of outcome space; frequentist and Bayesian standards for scientific evidence and statistical inference; and fixed-sample, group sequential and adaptive trial designs. The course will primarily use R.

BIOS 7899 Independent Study for PhD-Biostatistics **1.0-4.0 cr.**
(Spring, Summer, Fall) Prereq: PhD student or permission of instructor
This course is for the PhD student who wishes to pursue one or more topics in depth. These topics may involved biostatistical material, or biological material necessary to the student's biostatistical work. Supervision by a full-time faculty member is necessary.

BIOS 8990 Doctoral Thesis **1-10 cr.**
(Spring, Summer, Fall) PhD Dissertation work is completed under this course.

COMMUNITY BEHAVIORIAL HEALTH SCIENCES

CBHS 6610 Social and Behavioral Factors and Health **3.0 cr.**
(Summer, Fall) Considers social, behavioral, and cultural factors that affect the health of individuals and populations,and contribute to health disparities. Development, implementation and evaluation of programs and policies to promote and sustain health environments and lifestyles are examined. Online in summer.

CBHS 6612 Methods in Research and Evaluation **3.0 cr.**
(Spring, Fall) Prereq: BIOS 6601 and EPID 6630 strongly recommended prior to this course or taken concurrently.
Course covers social science research methods, including qualitative/quantitative research designs, data collection, and program evaluation (formative, process, outcome), to assess effectiveness of public health programs.

CBHS 6613 Program Planning and Implementation **3.0 cr.**
(Spring) Prereq: CBHS 6610 and CBHS 6612 or concurrent enrollment.
Course examines planning and implementation process with specific focus on health promotion programs. Students will learn about: needs assessments; specifying program objectives; using behavior change theory and evidence-based strategies; developing program, evaluation, adoption, implementation & sustainability plans.

CBHS 6614 Childhood Obesity **1.0 cr.**
(Spring) Restrictions: This course cannot be taken for credit toward the Public Health Nutrition program.
This course provides an overview of childhood obesity assessment, prevention and treatment. Key childhood obesity topics and challenges will be covered within the context of public health.

CBHS 6615 Health Literacy & Public Health **2.0 cr.**
(Spring) Restriction: Offered in even years.
This course provides an in-depth examination of health literacy...what it is, what implications it has for health, and how healthcare and public health professionals can ensure that treatment and intervention approaches are appropriate for people across health literacy levels.

CBHS 6616 Intimate Partner Violence: Epidemiology, Theory and Prevention **1.0 cr.**
(Spring) This course will provide an overview of intimate partner violence, addressing the epidemiology of the problem; theory of causes and consequences; and evidence-based prevention and treatment strategies. Critiques of past approaches and gaps in research and prevention will be highlighted.

CBHS 6617 Nutrition and Public Health **1.0 cr.**
(Spring) Restriction: This course cannot be taken for credit toward the Public Health Nutrition program.
This survey course begins with an overview of nutrition and its relation to health and disease. The learner will gain experience in reading and evaluating published nutrition research. The second half of the course focuses on public health nutrition topics.

CBHS 6618 Current Research in American Indian and Alaska Native Child Health and Development **1.0 cr.**
(Fall) Restriction: Offered in odd years
The Native Children's Research Exchange assembles researchers studying child and adolescent development in American Indian and Alaska Native communities. Students will attend this conference and examine lessons learned in presentations and through background readings, facilitated by faculty.

CBHS 6619 Public Health in the Global Community **3.0 cr.**
(Spring, Summer) Restriction: Credit will only be given for one of the following courses: PSCY 5170, ANTP 5710 or CBHS 6619
This course is a study of population health issues around the world. It enables students to (1) assess the current health status of a country and (2) understand and critically appraise the magnitude and likely causes of various health-related conditions.

CBHS 6620 Survey Research **3.0 cr.**
(Spring) Course examines survey research methodology, including face-to-face, telephone, mail and Internet surveys, includes: developing and ordering questions; formatting; reliability and validity; sampling; implementation; maximizing response rate; data issues; survey ethics and reporting.

CBHS 6621 Introductions to Maternal & Child Health **3.0 cr.**
(Fall) Introduction to the interdisciplinary field of maternal and child health and the complex health issues facing women, children and families. By incorporating a life course perspective students will explore how communities and governments work together to protect and advance the unique needs of this population's health and well-being.

CBHS 6622 Qualitative Research Methods **3.0 cr.**
(Spring, Fall) This course is designed to teach graduate students how and when to use a variety of qualitative methods in public health research. Students will gain experience and skills in designing, implementing, analyzing, and writing up the results of qualitative research.

CBHS 6624 Community Health Assessment **3.0 cr.**
(Spring, Fall) Prereq: EPID 6630; CBHS 6610 or CBHS 6611
Course teaches how to assess the social, cultural, economic, physical, and environmental components of population health. Students use national/local demographic and health data. Includes working with community clients and off-campus community-based fieldwork.

CBHS 6625 Current Regional Issues in Maternal & Child Health **1.0 cr.**
(Fall) Current regional issues, best practices and emerging practices in maternal and child health are explored at a large regional public health conference, and debriefed daily with an instructor. Pre-conference study and post-conference synthesis are required.

CBHS 6626 Public Health and Aging **2.0 cr.**
Restriction: Offered in variable terms and years
Introduces students to 1) factors across the social-ecological spectrum that will affect population patterns of health, disease, and risk factors to older adults; and 2) appropriate responses by public health, aging services and the research community.

CBHS 6627 Maternal Nutrition **1.0 cr.**
(Fall) Restrictions: This course cannot be taken for credit toward the Public Health Nutrition program. Offered in odd years.
This course provides an overview of nutrition issues affecting pregnant and breastfeeding women. Using a life cycle perspective, the course integrates clinical information with public health practice.

CBHS 6628 Tech-Based Health Promotion **3.0 cr.**
(Fall) This course will introduce students to health promotion programs delivered using computers, the internet and mobile phones. Students will learn strategies for designing, implementing and evaluating technology-based programs and will develop a technology-based health promotion program as a class project.

CBHS 6629 Health and Human Rights **3.0 cr.**
Restriction: Offered in variable years and terms
Examines the relationship between health and human rights with an emphasis on the principles of confidentiality, autonomy, justice, and beneficence. Using case studies, students will discuss practical, concrete strategies for improving health and well-being while protecting rights.

CBHS 6631 Introduction to Sexual and Reproductive Health **1.0 cr.**
(Spring) Restriction: Credit toward a CSPH certificate or degree will only be given for either this course or CHBH 5750
Introduction to the biology of human sexuality and reproduction, components of healthy sexual relationships, prevention of sexually transmitted infections and fertility control and issues related to sexual orientation.

CBHS 6634 Adolescent Health **1.0 cr.**
(Fall) This course will provide an overview of the major adolescent health issues, with a strong focus on the United States. The course will take a public health perspective and integrate a review of evidence-based prevention strategies into each health topic covered.

CBHS 6635 Child Nutrition **1.0 cr.**
(Fall) Prerequisite: CBHS 6617 or a basic nutrition course at the undergraduate or graduate level or permission of the instructor.
This course provides an overview of child nutrition from infancy to adolescence. Key child nutrition topics and challenges will be covered within the context of public health.

CBHS 6636 Early Childhood Health, ACEs, Toxic Stress and Health Equity **1.0 cr.**
(Summer) Early childhood health issues and how social conditions, public policies and inequities impact young children. By advancing a compelling documentary series, early life conditions such as adverse childhood experiences, toxic stress and epigenetics are examined along with their impact on brain architecture, resilience and health outcomes.

CBHS 6637 Applied Quantitative Analysis for Community Health Science **3.0 cr.**
(Spring) Prerequisite: BIOS 6601
This course is designed to provide students with an introduction to database management and common statistical analyses used in community health science. Emphasis will be placed on understanding how to prepare data to be analyzed and on being able to run and evaluate common statistical techniques using SPSS.

CBHS 6639 Health Behavior/Primary Care Field Work Experience **1.0 cr.**
Prerequisite: CBHS 6611 Restriction: Offered in variable terms and years.
This course is designed to afford students an opportunity to apply health behavior theoretical knowledge in a

real world setting. Students will provide wellness coaching on health behaviors to patients in a primary care setting.

CBHS 6640 Leadership for Public Health Practice 3.0 cr.
(Fall) Restriction: Enrollment in Leadership and Public Health Practice MPH concentration required. Permission of instructor required.
Part 1of a 2 semester sequence. Focus is on 1) assessing, using and developing personal strengths for leadership, 2) acquiring basic skills for developing and supporting the work of others in the workplace, 3) building teams for successful work in public health and 4) constructing a personal model for leadership in public health.

CBHS 6641 Developmental Screening, Strategies and Referral: A Public Health Approach 1.0 cr.
(Summer) This course will review early brain and child development, risk factors and conditions, typical and atypical development, developmental screening tools, early intervention programs and services, financing of services and the role of public health in services delivery for Children and Youth with Special Health Care Needs (CYSHCN).

CBHS 6642 Applied Program Evaluation – Field School 1.0-3.0 cr.
Prereq: CBHS 6612 Restrictions: Permission of instructor required. Offered in variable terms and years.
This course is designed to provide an applied learning experience that engages MPH students in all aspects of a program evaluation process over 2 semesters. Students will work with an actual client and design and carry out a program evaluation.

CBHS 6643 Women's Health: A Public Health Perspective 2.0 cr.
(Spring) This course will study and analyze specific women's health issues from a public health and epidemiologic viewpoint including, but not limited to, social determinants of health, health disparities, health equity, public health prevention, education and advocacy domestically and internationally.

CBHS 6644 Social Determinants of AIAN Health 3.0 cr.
(Spring) A thorough examination and analysis for health inequities affecting Native people in the context of social and environmental factors influencing American Indian and Alaska Native (AIAN) health. Students will examine factors influencing Native health at the individual, interpersonal, organizational, community and societal levels, focusing both on community needs and assets.

CBHS 6645 Latino Health I 2.0 cr.
(Fall) The aim of this course is to provide a theoretically grounded and experientially focused course specific to Latino/a/x/e Health in which students are challenged to learn, critically analyze and apply practical and conceptual knowledge regarding social determinants of health and health equity. The course will also cover discussion and analytic methods, reporting, visualization, problem-solving and data driven strategies to impact decision and other facets of Latinx health care and service to the community.

CBHS 6646 Community Participatory Research & Review with American Indians/Alaska Natives 2.0 cr.
(Summer) Basic framework of community-based participatory research (CBPR) and explore how this model works with Tribal and Urban AIAN communities. This course will also present the historical basis, rationale, conceptual framing, and processes of the tribal research and review that are necessary to know when working with tribal communities.

CBHS 6647 Foundations of American Indian Alaska Native Health 3.0 cr.
(Fall) This course covers critical policies and historical context that influences the current state of AIAN health, physical and psychological health implications of government policies and clarifying the health implications these policies have on the health and well-being of AIAN people.

CBHS 6648 Ethical Considerations in American Indian Alaska Native Health 1.0 cr.
(Summer) This course explores multiple dimensions of health-related work with American Indian Alaska Native populations using ethical framing to explore tensions between cultural and mainstream approaches to health; research and programs implemented in the context of tribal sovereignty; and ethical approaches to addressing health in resource-scarce settings.

CBHS 6650 MPH Research Paper **1.0-2.0 cr.**
(Fall, Spring, Summer) Restriction: Permission of department required
Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data.

CBHS 6652 Introduction to Mixed-Methods Research and Evaluation **1.0 cr.**
(Summer) This is a 1-credit one week course directed at developing the skills and knowledge needed to formulate mixed-methodological research and evaluation questions; identify a mixed-methods research design; collect and analyze both quantitative and qualitative data; interpret the mixed results; write up the mixed results; and critique the quality of mixed-methods studies.

CBHS 6653 Applied Dissemination and Implementation Science for Public Health Practitioners **3.0 cr.**
(Spring) Cross-listed with HSMP 6653. This course focuses on applied methods for disseminating, implementing and evaluating evidence-based health interventions in various practice settings. Students will learn skills for identifying a need or practice gap, selecting and adapting an evidence-based intervention, and developing an implementation plan that is guided by D&I models, frameworks and theories. Students will also have the opportunity to engage with community stakeholders.

CBHS 6654 Community-Engaged Participatory Methods: From Theory to Practice **2.0 cr.**
(Fall) This 2-week intensive and interactive practice-based course provides an overview of theories, principles and strategies associated with leveraging community expertise through participatory methods in research and public health practice. We will model many different practices and tools that can be used to authentically engage in processes of community inquiry, problem solving, and action planning to impact community change. The course will emphasize the importance of building trust, collaboration and shared power within communities.

CBHS 6655 Latino Health II **2.0 cr.**
(Spring) This course focuses on community-based participatory research, community engagement and understanding health disparities and health equity. The course provides an immersive learning experience specific to Latino/a/x/e Health in which students will have direct experience to apply practical and conceptual knowledge in the context of the Latino/a/x/e population-based health program interests.

CBHS 6656 Project Management for Public Health **3.0 cr.**
(Spring) This course provides students with the foundational knowledge and applied skills necessary to lead complex projects in public health and related sectors. Emphasizing both technical and interpersonal competencies, the course explores the distinct role of the project manager and examines strategies for effective team staffing, leadership, and communication. Students will learn to design job descriptions, lead equitable hiring processes, and support team development through mentoring.

CBHS 6665 Latino Health Mentored Project **2.0 cr.**
(Fall, Spring, Summer) This course applies practical and conceptual knowledge gained in the Latino Health courses and electives regarding improving Latino Health. It will apply analytic methods, reporting, visualization, problem-solving and data driven strategies to impact decisions and other facets of Latinx health care and service to the community.

CBHS 6670 Special Topics: Community & Behavioral Health **1.0-3.0 cr.**
(Spring, Summer, Fall) Special interest areas of community and behavioral health are analyzed in depth. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

CBHS 6840 Independent Study- Community & Behavioral Health **1.0-3.0 cr.**
(Fall, Spring, Summer) Restriction: Permission of department required.
Faculty directed independent study in topics related to community and behavioral health.

CBHS 6990 MPH Capstone Preparation – CBHS **1.0 cr.**
(Fall, Spring, Summer) Prereq or Coreq: PUBH 6606 MPH Practicum
MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

CBHS 7010 Quantitative Methods in Community Health **3.0 cr.**
(Fall) Prereq: BIOS 6601 and 6602 or equivalent. Cross-listed: BIOS 6628 Restriction: Offered in even years. Covers statistical approaches commonly used in behavioral sciences research, including reliability analysis, exploratory and confirmatory factor analysis, path analysis, structural equation modeling, and advance modeling procedures. Students will analyze data using statistical software, interpret results, and write summaries of findings.

CBHS 7020 DrPH Seminar in Leadership **3.0 cr.**
(Summer) Prereq: DrPH Seminar; Restriction: Offered in odd years. Restricted to CSPH DrPH students. Leadership topics: vision, values, collaborative action, teamwork, and practices with skills and application at personal, interpersonal and organizational levels necessary for effective leadership.

CBHS 7030 DrPH Directed Reading **1.0-2.0 cr.**
(Spring, Summer, Fall) Restrictions: Permission of course director and instructor required; Cross-listed: EHOH 7030, EPID 7030
This course will prepare DrPH students for comprehensive exams & dissertation research by becoming an expert in their specific areas of research, including understanding of historical development of specific areas, current research findings in the specific areas, & current practice.

CBHS 7637 Doctoral Applied Quantitative Analysis for Community Health Science **3.0 cr.**
(Spring) Cross-listed with CBHS 6637
This doctoral level course is designed to create competency in database management and common univariate, bivariate and multi-variable statistical analyses used in community health science. Emphasis will be placed on understanding how to prepare data to be analyzed and on being able to run and interpret statistical techniques using SPSS.

CBHS 7638 Advanced Qualitative Research Methods **3.0 cr.**
This course provides advanced graduate students in public health instruction in advanced qualitative methodologies and training in collection, analyzing, interpreting and writing qualitative research.

CBHS 7670 CBH Advanced Seminar **3.0 cr.**
(Fall) Prereq: CBHS 6611, 6612, 6613, 6624 or equivalent or permission of instructor; Restriction: Offered in even years. Enrollment in DrPH or permission of instructor.
This doctoral level course will address theory and practice at a level beyond that covered in CBH Master's level courses. Students will acquire advanced skills in developing, testing, and applying health behavior theory and methods to public health problems.

CBHS 7899 Independent Study for DrPH **1.0-4.0 cr.**
(Spring, Summer, Fall) This course is for the DrPH student who wishes to pursue one or more topics in depth. These topics may involve advanced methods pertinent to the student's dissertation work. Supervision by a full-time faculty member is necessary.

CBHS 8991 DrPH Dissertation-Community and Behavioral Health **1.0-10.0 cr.**
(Spring, Summer, Fall) Doctoral thesis work in Community and Behavioral Health.

ENVIRONMENTAL AND OCCUPATIONAL HEALTH

EHOH 6601 Public Health Concepts for Non-MPH **1.0 cr.**
(Fall) Restrictions: Offered in odd years. Credit cannot be counted towards the MPH degree.
This course fulfills the basic public health knowledge requirement for students in MS, PhD and DrPH programs. When taken in conjunction with PUBH 6600 and EPID 6630, all knowledge objectives required by the Council on Education for Public Health for public health students are fulfilled.

EHOH 6614 Occupational and Environmental Health **3.0 cr.**
(Spring, Fall) Restriction: This course is not taken by Environment, Climate and Health MPH concentration students who instead take EHOH 6619.

This course presents an overview of relationships between the environment, workplace and health. Topics include industrial hygiene, climate change, air and water pollution, toxicology, gene x environment, policy, environmental justice and sustainability. Methods include exposure and risk assessment, hierarchy of controls, and systems thinking.

EHOH 6616 Toxic Effects of Environmental, Workplace and Climate-Related Agents 3.0 cr.
(Spring) Prereq: Undergraduate Biology
This course examines basic and applied concepts of toxicology in environmental, workplace, and climate-related settings, with a focus on those agents that elicit adverse health effects such as learning how toxicants effect specific organ systems, understanding wildfire health effects, chemical threat agents, PFAS, and many others.

EHOH 6617 Environmental & Occupational Epidemiology 3.0 cr.
(Spring) Prereq: EHOH 6614 or EHOH 6619 Restriction: Credit will only be given for either EHOH 6617 or ERHS 5480
Overall goal of course is to provide a background in epidemiology of diseases related to environmental and/or occupational exposures. Application of epidemiologic research methods to determine and prevent such diseases will be discussed.

EHOH 6618 Policy Analysis for Climate, Environmental and Worker Health 3.0 cr.
(Spring) This course provides an in-depth examination of climate, environmental, and occupational health regulations, policies and practices by governmental agencies and other health-related entities at the local, state, national and international level. Across a range of policy cases, the course critically examines the policy process and policy outcomes. Students engage in hands-on policy analysis projects with local clients, coming away from the course with connections and skills that expand their potential to make real-world public health impacts.

EHOH 6619 Environmental Exposures and Health Effects 3.0 cr.
(Fall) Coreq: EPID 6630
This course integrates earth sciences, exposure sciences and biological sciences to understand conditions and circumstances of recent env/occ exposure events, the methods to assess exposures; and related health impacts. Case studies and laboratory exercises are used to guide instruction.

EHOH 6620 Risk Analysis & Decision Making 3.0 cr.
(Fall) Prereq: EHOH 6614 or EHOH 6619 Restriction: Offered in even years.
A general survey of risk analysis and risk-based decision making covering the basic components of risk assessment, communication, and management and how they are applied in various fields.

EHOH 6621 GIS for Public Health Research and Practice I 3.0 cr.
(Spring, Fall) This course will expose students to the fundamentals of using spatial data and Geographic Information Systems (GIS) software. Students will gain hands-on experience using ArcGIS Pro and ArcGIS Online across a variety of application areas in the health sciences, particularly focusing on integrating GIS technologies appropriately into research design and practice.

EHOH 6622 Intro to Public Health in Disasters 3.0 cr.
(Summer, Fall) This introductory course focuses on the public health role in community disaster preparedness. It explores the relationship between 10 essential public health services and how these services support the ability to prevent, respond, and rapidly recover from public health emergencies.

EHOH 6623 Geographic Perspective on Global Health 2.0 cr.
(Summer, Fall) This course will review geographic concepts and tools taking a regional, holistic approach to understanding the world's peoples, places, and processes in order to lay a foundation for an improved knowledge of global health.

EHOH 6624 Infectious Diseases, Environmental Contexts 3.0 cr.
(Spring) Prereq: EHOH 6614 or EHOH 6619, EPID 6630 Restriction: Offered in even years.
Students will study the impact of environmental factors, from sanitation to climate, on infectious diseases. Topics include infectious disease emergence, water- and vector-borne diseases, zoonoses and analytic approaches for evaluating environmental determinants of infectious disease.

EHOH 6625 Children in Crisis: Health, Protection, and Humanitarian Response 3.0 cr.
(Summer) Children experience climate-related disasters and humanitarian emergencies through developmentally specific health risks, family disruption, displacement, food insecurity, violence, and interrupted essential services. This course examines children's health, protection, and rights in disasters, conflict, epidemics, and other global humanitarian crises. Students use epidemiologic and developmental evidence, humanitarian standards, and ethical frameworks to assess needs and evaluate coordinated responses across health, nutrition, WASH, education, protection, and mental health and psychosocial support.

EHOH 6626 Disasters and Climate Crises: Practical Applications 3.0 cr.
(Spring) This course advances the skill set for emergency public health professionals who may participate in planning and implementing response activities in climate related and other types of disasters and the challenges of collaborating, coordinating and interfacing with internal and external emergency management response partners.

EHOH 6627 Water Quality and Public Health 3.0 cr.
Restriction: Offered in variable terms and years.
This course covers public health concerns involving water quality issues ranging from contamination of drinking water to socio-political issues that impact accessibility to clean water. The fundamental concept is that access to clean water is a basic human right.

EHOH 6628 Health Protection/Promotion in the Workplace 3.0 cr.
(Fall) Course introduces the principles of Total Worker Health (TWH), an approach to address improving the health, safety, and well-being of workers. TWH is a transdisciplinary field in public health practice and research that spans the themes of occupational safety and health, worksite wellness, management/leadership, health behavior, organizational health psychology, economics, communication, dissemination and implementation science, and evaluation. Students have the opportunity to critically consider the research basis for TWH and develop applied skills.

EHOH 6629 Introduction to Occupational Safety and Ergonomics 2.0 cr.
(Spring) This course will form a foundation for understanding of workplace factors important in the prevention of injuries. Students will recognize safety and ergonomic hazards that may lead to injury as well as learn strategies to abate these hazards.

EHOH 6631 Public Health and Occupational Medicine Seminar for Residents 1.0 cr.
(Spring, Summer, Fall) This course is designed to capture the activities of Occupational and Environmental Medicine residents as advanced, integrated practice of medical and public health in a structured manner, providing a mechanism for resident and programmatic evaluation and academic credit toward the resident MPH degree.

EHOH 6632 Occupational Health Policy and Practice for Occupational Medicine Residents 3.0 cr.
(Spring, Fall) OEM residents need to develop knowledge and skills in policy development and implementation in the field of Occupational Health. This course will develop deep comprehension of the Colorado Workers' Compensation system and the Division's efforts to comply with the legislative charge to assure appropriate medical care at a reasonable cost.

EHOH 6633 International Travel and Health 1.0 cr.
(Spring) Restriction: This course is required for all CSPH students planning international travel for any independent coursework, Practicum and/or Capstone.
This course is designed to help students understand and respond to health and safety risks that accompany international travel. It emphasizes using available resources to create recommendations based on both travel itinerary and specific activities. Some medical subjects are included but medical jargon will be avoided.

EHOH 6634 Spectrum of Professions Protecting/Promoting Worker Health 1.0 cr.
(Fall) Introduction to multiple occupational health professions including industrial hygiene, ergonomics, occupational health psychology, occupational safety, health physics, occupational medicine, epidemiology, health promotion and wellness, program evaluation and risk management. Practice issues, current research and methods are covered.

EHOH 6635 Climate Change and Health **3.0 cr.**
(Fall) This course builds expertise in the health impacts of climate change and develops skills to promote health in a changing climate. Includes guest lectures from experts in the field and class activities to reinforce learning. Topics include climate science, health impacts from wildfires to disasters, climate adaptation assessments, building climate resilience, climate policies and climate communication.

EHOH 6636 Occupational Safety and Ergonomics with Journal Clubs **3.0 cr.**
(Spring) This course will form a foundation for understanding of workplace factors important in the prevention of injuries. Students will recognize safety and ergonomic hazards that may lead to injury as well as learn strategies to abate these hazards. Students will apply knowledge gained during the course during student-led journal clubs.

EHOH 6637 Occupational & Environmental Health Working the West Industry Tours **1.0 cr.**
(Summer) Restriction: Offered in variable years.
Interdisciplinary field experience meant to engage students in a variety of high-risk Colorado industries. Students will spend one week traveling around Colorado touring 5 uniquely hazardous work environments to receive first-hand experience of occupational hazards and get exposure to occupational safety and health promotion disciplines.

EHOH 6638 Communication Skills for Public Health Impact **3.0 cr.**
(Spring) Experiential approach to training public health students to become better communicators using examples from environmental and occupational health. Grounded in theory, but focusing on practical skill development, this course will prepare students for common scenarios in which they will be called upon to state the case for public health.

EHOH 6639 Occupational Health Psychology **3.0 cr.**
(Fall) This course seeks to advance the understanding of both organizational and individual factors that influence total worker health. The course includes an introduction to organizational psychology, seminal and current research and best practices regarding key topics and issues in occupational health psychology.

EHOH 6640 The Built Environment and Public Health **3.0 cr.**
Restriction: Offered in variable terms and years. Credit will not be given for taking both EHOH 6640 and PBHC 6924.
This course provides an introduction to the built environment and its impact on public health examining how specific features within the built environment and related policies (global, national and local) affect human health outcomes. The course will have a specific focus on regional and local built environment issues.

EHOH 6641 Critical Policies in Global Health Engagement **3.0 cr.**
Restriction: Offered in variable terms and years. Suggested Prerequisite: EHOH 6625
This course will provide a foundation of knowledge in the critical policies which govern global health engagement. Providing insights from experienced professionals, and using key case studies to highlight each policy, students will emerge with a pragmatic understanding of how these policies function during times of acute crisis.

EHOH 6642 Climate and Disaster Mental Health **3.0 cr.**
(Spring) Contemporary issues in climate and disaster mental health with an emphasis on natural hazards, mass violence, disease outbreaks, civil conflict and forced displacement with a broader understanding of the pathways between mental health and climate change.

EHOH 6643 Air Quality and Public Health **3.0 cr.**
Restriction: Offered in variable terms and years.
This course will provide a broad perspective on public health concerns related to air pollution and air quality. Topics include: air pollution sources; effects on human health and the environment; how climate change impacts air; air quality standards, sampling, monitoring and health assessments; bioterrorism; accessibility to clean air.

EHOH 6650 MPH Research Paper **1.0-2.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of department required
Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data.

EHOH 6670 Special Topics: Environmental & Occupational Health **1.0-3.0 cr.**
(Spring, Summer, Fall)
Special interest areas of current environmental and occupational research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

EHOH 6840 Independent Study: Environmental & Occupational Health **1.0-3.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of department required
Faculty directed independent study in topics related to environmental and occupational health.

EHOH 6990 MPH Capstone Preparation – EHOH **1.0 cr.**
(Fall) Prereq or Coreq: EHOH 6619, PUBH 6606 MPH Practicum
MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration. Because identification of a preceptor, location and topic for a capstone project should be completed within the first two weeks of the semester, students are highly encouraged to begin this process prior to enrollment, with guidance from their advisor.

EHOH 7030 DrPH Directed Reading **1.0-2.0 cr.**
(Spring, Summer, Fall) Restrictions: Permission of Program Director and instructor required.
This course will prepare DrPH students for comprehensive exams & dissertation research by becoming an expert in their specific areas of research, including understanding of historical development of specific areas, current research findings in the specific areas and current practice.

EHOH 7401 Climate Change and Worker Health **3.0 cr.**
(Spring) This course builds on the student's understanding of climate-related health effects by examining how work design and organization, occupational exposures, and unique worker vulnerability contribute to the risk of injury or illness. Students will also examine specific mitigation and adaptation strategies and the roles of individuals, labor organizations, businesses, academia, coalitions, consortiums, and governments in implementing these strategies.

EHOH 7402 GIS for Public Health Research and Practice II **3.0 cr.**
(Spring) Restriction: Offered in even years. Prerequisites: EHOH 6621
This Geographic Information System (GIS) course is designed for students that are familiar with spatial data and ArcGIS Pro software. It focuses on advancing data management and cartographic skills and introduces students to more advanced toolboxes. The course includes topics such as geographically weighted regression, geostatistical estimation, network analysis, access to care metrics, creation of composite indices, space/time pattern analysis, and utilization of satellite and other raster datasets.

EHOH 7403 Research Methods: Climate, Disaster and Humanitarian Perspectives **3.0 cr.**
(Summer) Restriction: Offered in even years. This is a doctoral level practical research proposal building course, focused on mixed methods approaches for testing health/public health interventions in climate change-affected, disaster and humanitarian settings.

EHOH 7405 Advanced Communication Skills for Public Health Impact **3.0 cr.**
(Spring) Restriction: Offered in odd years.
This doctoral level course offers an experiential approach to becoming more effective communicators and leaders in public health. Grounded in theory, it focuses on advanced verbal and written skill development to prepare students to tackle though scenarios in which they will be called upon to state the case for public health, especially focusing on non-public health/non-scientific audiences. The course will emphasize advanced communication skills needed to produce clear and effective messages through the lens of public health.

EHOH 7630 Building Public Health Consulting Skills in Work Settings **2.0 cr.**
(Spring) This course is an interdisciplinary field and consultation experience. This course follows a field consultation format, which allows students to develop consulting skills that are generalizable across public health practice. We focus on leadership, collaboration with stakeholders seeking consultant input, and communication skills in the setting of a 'real world' semester-long project addressing occupationally-related health and safety issues being faced by employers.

EHOH 7631 Advanced Methods in EOH **3.0 cr.**

(Fall) Prereq or Coreq: EHOH 6614 Restriction: Permission of instructor required
This course will focus on five areas of advanced methodology for EOH: exposure assessment, toxicology, epidemiology, built environment, and worker health. Methods covered include survey design, environmental sampling, risk assessment, biomarkers, and on issues associated with analysis of secondary datasets. This course is the first of a two course series.

EHOH 7632 Advanced Field Methods in EOH **1.0 cr.**
(Spring) Prereq: EHOH 7631 Restriction: Permission of instructor required
This course follows and will build on the Advanced Methods in EOH course (EHOH 7631) where the EOH DrPH students prepare an NIH R21-style grant proposal. This course will then provide practical field and laboratory applications on the project from the Fall course that is based on the students' interests.

EHOH 7656 Environmental Data Science for Public Health **3.0 cr.**
(Spring) Prereq: BIOS 6601/BIOS 6602 or BIOS 6611/BIOS 6612 or a year of equivalent graduate-level statistics or permission of instructor. Cross-listed: EPID 7656 Restriction: Offered in odd years.
Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered will include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and sociodemographics.

EHOH 7899 Independent Study for PhD/DrPH **1.0-4.0 cr.**
(Spring, Summer, Fall) This course is for the PhD or DrPH student who wishes to pursue one or more topics in depth. These topics may involve advanced methods pertinent to the student's dissertation work. Supervision by a full-time faculty member is necessary.

EHOH 8990 Doctoral Thesis **1.0-10.0 cr.**
(Spring, Summer, Fall)
PhD Doctoral thesis work in Climate and Human Health

EHOH 8991 DrPH Dissertation – Environmental and Occupational Health **1.0-10.0 cr.**
DrPH Dissertation work in Environmental and Occupational Health

EPIDEMIOLOGY

EPID 6605 Introduction to R for Health Sciences **1.0 cr.**
(Fall) This class will introduce students to the basics of using R for public health and other health sciences. R syntax, data wrangling (manipulation, summaries, tables, functions, and loops) and data visualization will be covered. No previous coding experience required. This course will be taught in one two-hour session per week for the first 8 weeks of the Fall semester.

EPID 6606 Obesity and Cardiovascular Disease **1.0 cr.**
Cross-listed with IDPT 6006 Restriction: Offered in variable years and terms.
This course will cover the epidemiology of obesity and cardiovascular disease and basic and clinical mechanisms on the pathophysiology of vascular biology, insulin resistance, and other risk factors for cardiovascular disease as well as behavioral, pharmacological and surgical therapeutic interventions to modify cardiovascular diseases risk by weight reduction.

EPID 6607 Data Management with R **2.0 cr.**
(Fall) Prerequisite: EPID 6605
This class introduces students to data management skills necessary for a career in the public health workforce. Data collection, dataset cleaning, merging and manipulation, data security, and basic data summarization, analysis and display will be demonstrated and practiced in this skill-building course. This course will be taught in two two-hour sessions per week for the last 8 weeks of the Fall semester.

EPID 6624 Public Health Surveillance **2.0 cr.**
(Spring) This course focuses on characteristics, development, uses, and evaluation of major public health surveillance systems. History, goals, public health authority, analysis, interpretation, dissemination and

privacy issues are covered. Key surveillance systems (communicable diseases, vital statistics, injury, cancer) are explored.
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EPID 6626 Research Methods in Epidemiology **3.0 cr.**
(Spring, Fall) Prereq: BIOS 6601, EPID 6630 and either BIOS 6680 or EPID 6605 and EPID 6607
Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research are the focus of this class. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies.

EPID 6627 Stigma, Health Inequities and Global Health **1.0 cr.**
(Summer) Restriction: Offered in odd years.
This course is designed to equip learners with a foundational understanding of structural stigma, how it manifests across a variety of global health contexts, and the social contexts that help explain its relative commonality. Learners who complete the course will also be able to identify descriptive epidemiologic approaches for measuring structural stigma as well as tools used for assessment of anti-stigma interventions.

EPID 6628 Global Health and Disasters **2.0 cr.**
(Fall) Preparation for international experiences and future global health work. The interactive training incorporates readings, lectures, small group problem based learning exercises, journal club discussions, technical skill sessions and a disaster simulation exercise. 2 week M-F training followed by 4 journal club sessions.

EPID 6629 Clinical Epidemiology **2.0 cr.**
(Summer) Prereq: EPID 6630; Restriction: Offered in variable years.
This course provides an overview of the design, conduct and appraisal of clinical research. Topics include study design, issues in randomized trials, measurement error, assessment of diagnostic and screening tests, measurement of health-outcomes, meta-analysis and use of questionnaires.

EPID 6630 Epidemiology **3.0 cr.**
(Fall) This course provides an introduction to descriptive and analytic methods in epidemiology and their application to research, preventive medicine and public health practice.

EPID 6631 Analytical Epidemiology **3.0 cr.**
(Spring, Summer) Prereq: EPID 6630 and BIOS 6601 or BIOS 6611
This course will provide the fundamental analytical skills for assessing and reporting disease status, determinants of disease and their impact on public health. Students will learn methods of determining rates of disease occurrence, measures of associations between exposures and disease, and techniques for identifying and correcting for misclassification, effect modifiers and confounders. This is a skill-building course. BIOS 6680 OR both EPID 6605 and EPID 6607 are not a prerequisite but are strongly encouraged.

EPID 6634 Applied Global Health Epidemiology **2.0 cr.**
(Spring) This course provides the opportunity to apply epidemiologic analysis skills and practice communication of findings using "real world" examples of global public health investigations, research projects, and programs; and explores the ethical, legal, political, and cultural aspects of working in global public health.

EPID 6635 Infectious Disease Epidemiology **2.0 cr.**
(Fall) Prereq: EPID 6630 Restriction: Offered in odd years. Credit will only be given for either this course or VSCS 5330.
This overview course covers a broad range of topics including basic epidemiologic concepts, vaccines, emerging pathogens, hospital infection control, foodborne illness and outbreaks. Specific pathogens are also reviewed due to their public health importance or their ability to demonstrate important epidemiologic principles.

EPID 6636 Chronic Disease Epidemiology **3.0 cr.**
(Fall) Coreq: EPID 6630 or Instructor Permission; Restriction: Offered in even years.
The epidemiology of major chronic diseases of Western countries will be reviewed including heart disease, cancer, stroke, diabetes, neurological diseases, and selected other conditions. Methodologic issues related to the study of these diseases, disease surveillance and strategies for prevention will also be covered.

EPID 6637 The Violence and Injury Epidemic: A Public Health Approach **2.0 cr.**
(Spring) Prereq/Coreq: EPID 6630 or permission of instructor; Restriction: Offered in odd years.
Students will learn the major causes of and risk factors for injuries and violence, identify and use key data sources to characterize injury problems, develop and evaluate injury control and prevention strategies, critically analyze literature and explore injury related research questions.

EPID 6638 Global Cardiovascular Epidemiology **2.0 cr.**
Prereq: EPID 6630.; Restriction: Offered variable terms and years.
A review of the major issues in global cardiovascular disease epidemiology, including trends, the extent of the disease nationally and internationally, implications of major epidemiologic studies, and strategies for prevention. Emphasis of the course will be on review and interpretation of the cardiovascular epidemiology literature.

EPID 6640 Investigation of Disease Outbreaks **2.0 cr.**
(Summer) Prereq: EPID 6630. Credit will not be given for taking both EPID 6640 and EPID 6648
This course will cover the epidemiologic steps in a disease outbreak investigation and the methods used in detection, investigation and control of disease outbreaks. Outbreak case studies will be used to illustrate concepts and approaches. Students will describe, analyze and interpret outbreak data.

EPID 6642 Genetics in Public Health **2.0 cr.**
(Spring) Prereq: EPID 6630; Restriction: Offered variable years.
Course introduces public health and research applications in genetics. Topics will include population genetics, genetic epidemiologic principles, screening, ethics, and the effect of genetics on population health. Interactive discussions and lectures will be based on current topics from literature.

EPID 6644 Maternal Child Health Epidemiology **3.0 cr.**
(Fall) The purpose of this course is to train public health students to use epidemiologic tools for the appropriate interpretation of data and information to drive MCH program assessment, planning, evaluation and policy development.

EPID 6645 One Health – EcoHealth – Planetary Health **1.0 cr.**
(Spring) Restriction: Offered in even years.
This course provides students with a fundamental understanding of the integrated health concepts 'One Health', 'EcoHealth' and 'Planetary Health'. The students will learn to navigate the landscape of these concepts including synergies, overlaps and differences. The course is aimed at all students who wish to better understand integrated health concepts beyond human health. Students will also be able to further develop their skills in the moderation of discussions and will have opportunities to network with international experts joining the course. After being initiated to the core concepts, students will apply their knowledge by discussing the inclusion of these concepts in exemplary research projects presented by external lecturers and experts.

EPID 6646 Methods for Conducting Systemic Review and Meta-Analysis **2.0 cr.**
(Spring) Prereq: EPID 6630 and either BIOS 6601 or BIOS 6611 Restriction: Offered in even years.
This course provides a broad understanding of the application of systemic reviews to public health, medicine, and health policy. It introduces key steps for performing systemic reviews and meta-analyses through hands-on exercises, including formulating a research question and hypothesis, developing a search strategy, identifying eligible studies, extracting data, assessing the risk of bias of included studies, and synthesizing the evidence qualitatively and quantitatively. Focuses on analytical skills in performing pairwise meta-analysis.

EPID 6648 Theory/Practice Foodborne Disease Outbreak Detection **1.0 cr.**
(Spring) Prereq: Introductory course in epidemiology or permission of instructor. Credit will not be given for taking both EPID 6648 and EPID 6640
This course focuses on the practical basis for developing and implementing methods for foodborne disease outbreak detection, investigation and control; using recent outbreaks to highlight underlying principles.

EPID 6650 MPH Research Paper **1.0-2.0 cr.**

(Spring, Summer, Fall) Restriction: Permission of department required
Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data.

EPID 6651 EPID MS Research Paper **1.0-6.0 cr.**
(Spring, Summer, Fall) Masters research paper in epidemiology is completed under this course.

EPID 6652 Fundamentals of Clinical and Epidemiological Research **1.0 cr.**
(Summer) Restriction: Credit will not be given towards a degree for taking both this course and EPID 6630.
Designed for clinicians who are interested in rapidly learning fundamental research principles appropriate to developing new research on child abuse. Non-clinicians by permission. Creating a study question, formulating hypotheses, study designs and basics of statistical inference.

EPID 6655 Evidence and Methods for the Link Between Infectious Diseases Causing Chronic Diseases **1.0 cr.**
(Spring) Prerequisites: EPID 6635 or EPID 6640 and EPID 6630 and BIOS 6601 or permission of instructor. Restriction: Offered in odd years.
The burden of chronic disease that is currently thought to be associated with infectious diseases is large. This includes infectious disease exposures by both accepted causal relationships as well as by diseases where infectious diseases are discussed as a contributing factor or assumed to play a role without formal proof at this point. Current methodological challenges include long latency, partial causality, and the fact that the sequence of infectious disease exposures during the life course might play a role. Students will be introduced to examples of infectious diseases implicated in chronic diseases that include autoimmunity and cancer. Student will also be able to further develop their skills in the moderation of discussions and will have opportunities to network with international experts joining the course. This course aims to prepare students for future research areas that are beyond the current understanding of pathogenesis of chronic diseases.

EPID 6657 Concepts and Methods of Infectious Disease Epidemiology **2.0 cr.**
(Fall) Prereq:: EPID 6630 or equivalent introductory epidemiology course.
Deeper understanding of concepts and methods specific to infectious disease epidemiology, building upon principles of general epidemiology, and knowledge of specific infectious diseases. The course builds on the central principle of dependent happenings.

EPID 6658 Fundamentals of Social Epidemiology **2.0 cr.**
(Spring) Prereq:: EPID 6630 or equivalent introductory epidemiology course. Offered in even years. Restriction: Credit will not be given towards a degree for taking both EPID 6658 and PBHC 5730.
This course provides an overview of theories and empirical evidence that shows support for the relationships between social environments and health including the historical development of social epidemiology and the major theories in social epidemiology. How constructs of social class, race/ethnicity and gender are all used in social epidemiology within observational, quasi-experimental, and experimental approaches, as well as interventions and policy analyses are discussed.

EPID 6670 Special Topics: Epidemiology **1.0-3.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of instructor.
Special interest areas of current epidemiology research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

EPID 6840 Independent Study: Epidemiology **1.0-3.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of department required
Faculty directed independent study in topics related to epidemiology.

EPID 6950 Masters Thesis **1.0-6.0 cr.**
(Spring, Summer, Fall) Epidemiology thesis work is completed under this course.

EPID 6990 MPH Capstone Preparation - EPID **1.0 cr.**
(Spring, Summer, Fall) Prereq or Coreq: EPID 6626, EPID 6631, PUBH 6606 MPH Practicum

MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

EPID 7030 DrPH Directed Reading **1.0-2.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of course director and instructor required
This course will prepare DrPH students for comprehensive exams and dissertation research by becoming an expert in specific areas of research, including understanding of the historical development of specific areas, current research findings in specific areas, and current practice.

EPID 7605 Research Methods with Secondary Data Sources **3.0 cr.**
(Spring) Covers the principle methods of research design and analysis specific to secondary data use including surveillance, population and community-based data, national surveys, and medical record data. Methods explored include: identifying and working with secondary data, complex sampling design and weighting, triangulation, handling missing data, non-random allocation/propensity score, and power/sample size.

EPID 7615 Pharmacoepidemiology **2.0 cr.**
(Spring) Prereq: EPID 6630, 2 course biostatistics series (BIOS 6601-6602 or BIOS 6611-6612); Restriction: Offered in variable years
This course builds upon fundamental concepts and methods of epidemiology, applied to the study of pharmaceuticals. Topics include: The FDA approval process, mechanisms of adverse drug effects, methods and data systems for studying drug-effect relationships, and evaluating published pharmacoepidemiology studies.

EPID 7631 Advanced Epidemiology 1 **3.0 cr.**
(Fall) Prereq: EPID 6630 or equivalent and BIOS 6611 (may be taken concurrently) or BIOS 6602 with consent of instructor.
This course takes a deeper dive into epidemiologic concepts with a focus on epidemiologic theory, causality and key assumptions underlying common tools and methods. The course emphasizes strategies to identify and reduce common sources of bias and threats to validity as well as concepts of reproducible research. Practical skills will be developed in applied exercises using statistical software and demonstration datasets.

EPID 7632 Advanced Epidemiology 2 **3.0 cr.**
(Spring) Prereq: EPID 6630, EPID 6631, BIOS 6601
This is an advanced course on epidemiologic methods designed to improve the student's ability to conduct and interpret observational epidemiologic studies.

EPID 7656 Environmental Data Science for Public Health **3.0 cr.**
(Spring) Prereq:: EPID 6605, BIOS 6601/BIOS 6602 or BIOS 6611/BIOS 6612 or a year of equivalent graduate-level statistics or permission of instructor. Cross-listed: EHOH 7656 Restriction: Offered in odd years. Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and sociodemographics

EPID 7670 Advanced Special Topics **1.0-3.0 cr.**
(Spring, Summer, Fall) Advanced special interest areas of current epidemiologic research and practice are presented. The course format is lecture and discussion or seminar. Check the CSPH Course Catalog for offerings and topics for this course each semester.

EPID 7899 Independent Study for PhD-Epidemioloogy **1.0-4.0 cr.**
(Spring, Summer, Fall) This course is for the PhD student who wishes to pursue one or more topics in depth. These topics may involve advanced methods pertinent to the student's epidemiologic thesis or dissertation work. Supervision by a full-time faculty member is necessary.

EPID 7911 Epidemiologic Field Methods **1.0-4.0 cr.**

(Spring, Summer, Fall). Prereq. EPID 6626, EPID 6630, EPID 6631, EPID 6632, BIOS 6611, BIOS 6612. Restriction: Enrollment in Epidemiology PhD program or permission of instructor.
PhD students have the opportunity to work with faculty on current epidemiologic projects to develop skills in field research, proposal writing, budget development, staff hiring and training, protocol and instrument development and implementation, and specific methods topics.

EPID 7912 Developing a Research Grant **3.0 cr.**
(Fall) Prereq: Enrollment in at least the second year of a doctoral program and have completed an advanced methods course.
PhD/DrPH students prepare high quality, successful, research grant applications through development of cogent research questions & appropriate study designs. Students familiarize themselves with grant writing and review process and improve critical thinking skills and quality of scientific writing.

EPID 7915 Analytic Methods in Epidemiology **1.0-4.0 cr.**
(Spring, Summer, Fall) Prereq: EPID 6626, EPID 6630, EPID 6631, EPID 7631, BIOS 6601/6602 or BIOS 6611/6612.
Advanced techniques in the design and analysis of epidemiological studies, including nested designs and novel sampling strategies, longitudinal, time-dependent, survival methods, casual inference methods, techniques for imputing missing data, measurement error correction methods, etc. Students will work with faculty using existing data sets to learn and implement contemporary epidemiological methods. Check the CSPH Course Catalog for offerings and topics for this course each semester.

EPID 8990 Doctoral Thesis **1.0-10.0 cr.**
(Spring, Summer, Fall)
PhD Doctoral thesis work Epidemiology.

EPID 8991 DrPH Dissertation – Epidemiology **1.0-10.0 cr.**
(Spring, Summer, Fall)
DrPH Dissertation work in Epidemiology

HEALTH SYSTEMS, MANAGEMENT AND POLICY

HSMP 6601 Introduction to HSMP **3.0 cr.**
(Spring IP, Fall OL) Provides an introduction to health systems, management and policy. Topics include the financing and organization of the U.S. healthcare system; introduction to health policy, including stakeholder analysis; and basic managerial skills, including human resources and budgeting.

HSMP 6602 Health in Context: Social and Policy Influences **3.0 cr.**
(Spring IP, Fall OL) This course focuses on the advancement of health for everyone and examines persistent and preventable patterns in health outcomes that affect a wide range of populations. The course critically explores how institutional, interpersonal, and structural mechanisms shape health experiences through differences in access, opportunity, exposure and health care. It examines the historical systems that have shaped how health and well-being are studied, governed, and distributed across populations, while exploring actionable solutions to create the conditions necessary for optimal health.

HSMP 6604 Health Care Economics **3.0 cr.**
(Spring IP, Fall OL) Uses economic theory to analyze and understand the US health care system. Topics include: Demand and supply of health and health care, health insurance, hospital, pharmaceuticals, and physicians. Analyzes institutional and legal incentives that affect physician, patient, and insurer decision-making.

HSMP 6605 Health Policy **3.0 cr.**
(Spring IP, Fall OL) Course focuses on important U.S. health policy issues and analysis, implementation, and communication skills for the practice of health policy. Evaluation is based on in-class labs, group projects, and analysis paper of a health policy case example.

HSMP 6606 Public Health Administration **2.0 cr.**

(Fall IP) Course provides an introduction to public health management and administration. Components aim to stimulate interactions around important problems and issues including managerial decision-making and increasing practical knowledge, tools, and strategies required by organizational decision-makers. Business plans are produced.

HSMP 6608 Ethical and Legal Issues in Public Health **2.0 cr.**
(Fall IP) Course explores the legal and ethical dimension of public health. It focuses on topics that generate legal and ethical controversies, including governmental duties to protect citizens, nature and extent of the government's ability to regulate conduct, and responses to epidemics.

HSMP 6609 Cost Benefit and Effectiveness in Health **2.0 cr.**
(Spring OL) Restriction: Credit will only be given for either HSMP 6609 or AREC 5720.
Introduces students to the basics of economic evaluations of health care interventions or technology. Economic evaluations provide a method to assimilate different cost and health outcomes associated with medical treatments into a common metric.

HSMP 6610 Health Care Financial Management **3.0 cr.**
(Fall R) Students will acquire the tools to incorporate financial, strategic, and mission-based objectives into capital investment decisions. The material also enables students to assess financing options and understand asset evaluation techniques, create financial statements and perform pro-forma financial analyses.

HSMP 6613 Addressing Health Equity in Colorado's Safety Net **1.0 cr.**
Restriction: Offered in variable years and terms.
Real world health equity challenges as described by today's leaders featuring guest lecturers and case studies from organizations actually doing the work in communities across Colorado. The challenges of providing high quality medical, oral, behavioral and social services to some of Colorado's most diverse populations will be discussed.

HSMP 6614 MCH Program Management & Policy Analysis **3.0 cr.**
(Fall) Students will learn and apply program management concepts and policy analysis methods to choose among potential policy and programmatic solutions to improve the health outcomes of pregnant women, infants, children, and children with special health care needs.

HSMP 6615 Current Global Health Policy Issues **2.0 cr.**
(Fall) Students will identify major actors and their roles in global health policy; discuss major policy issues focusing on poverty reduction using case study examples; and write a health policy analysis paper for the assessment in this course.

HSMP 6616 Introduction to Health Policy Analysis and Communication **1.0 cr.**
(Spring OL, Fall IP) Introduces a framework for systemically and critically evaluating the health policy literature. Reviews effective oral and written communication skills for presenting policy analyses. Evaluation is based on a written analysis of a policy paper of the student's choosing.

HSMP 6617 Interpreting Health Policy and Management Research **2.0 cr.**
(Spring) This course explores the methods used in health policy and management research. Students learn to read and interpret research, with an emphasis on understanding the strengths and weaknesses of different analytical approaches to become an effective consumer of the literature.

HSMP 6618 Comparative Health Systems **2.0 cr.**
(Spring IP) This course provides framework for students to analyze the different ways that health care is organized and delivered in settings around the world including low-, middle- and high-income countries. Exploration of how a country's history, geography, government and economy influence the way that health care is provided.

HSMP 6623 Systems Thinking and Analysis **2.0 cr.**
(Fall) Restriction: Offered in even years.
Exploration of how a systems thinking approach can help frame problems for future research, identify leverage points for interventions, mitigate unintended consequences of these interventions, and inform policy solutions and research to address complex public health problems.

HSMP 6630 Grant Writing for Public Health Professionals 2.0 cr.
Restriction: Offered in variable years and terms. Prereq: BIOS 6601, EPID 6630 and the core course within the student's MPH concentration.
This course focuses on basic skills required to develop, fund and evaluate data-driven, evidence-based public health programs. The course involves the construction of a 3-step logic model: Need, intervention and outcomes. In addition, organization/individual capacity, partnerships and budget is discussed.

HSMP 6634 Management, Budgeting and Public Health Administration 3.0 cr.
(Fall) This course is designed to prepare public health professionals for management and administration of public health programs and community initiatives. Content addresses program planning, development, budgeting, management and evaluation.

HSMP 6635 Applied Artificial Intelligence in Public Health Practice and Research 3.0 cr.
Restriction: Offered in variable terms and years. Cross-listed with BIOS 6635.
This course explores the foundational concepts of AI focusing on Large Language Models (LLMs) and Genrerative AI, without requiring prior programming or advanced mathematical knowledge. The course emphasizes practical applications, equipping students to leverage existing AI tools for tasks relevant to public health research and practice.

HSMP 6640 Leadership for Public Health Practice Part 2 3.0 cr.
(Spring) Restrictions: Enrollment in Leadership and Public Health Practice MPH concentration required. Completion of CBHS 6640 required or permission of instructor.
Part 2 of a 2 semester sequence. The focus of this course will be: 1) understanding public health structure, laws, regulations and policies; 2) creating a collaborative environment to deliver essential public health services; 3) Create and disseminate work plans and results to communities and stakeholders.

HSMP 6650 MPH Research Paper 1.0-2.0 cr.
(Spring, Summer, Fall) Restriction: Permission of department required
Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data.

HSMP 6653 Applied Dissemination and Implementation Science for Public Health Practitioners 3.0 cr.
(Spring) Cross-listed with CBHS 6653. This course focuses on applied methods for disseminating, implementing and evaluating evidence-based health interventions in various practice settings. Students will learn skills for identifying a need or practice gap, selecting and adapting an evidence-based intervention, and developing an implementation plan that is guided by D&I models, frameworks and theories. Students will also have the opportunity to engage with community stakeholders.

HSMP 6670 Special Topics: Health Systems, Management and Policy 1.0-3.0 cr.
(Spring, Summer, Fall) Special interest areas of current health systems, management, and policy research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check with CSPH website for offerings and topics for this course each semester.

HSMP 6840 Independent Study: Health Systems, Management and Policy 1.0-3.0 cr.
(Spring, Summer, Fall) Restriction: Department consent required
Faculty directed independent study in topics related to health systems, management and policy.

HSMP 6990 MPH Capstone Preparation - HSMP 1.0 cr.
(Fall R) MPH Capstone Preparation will focus on developing the basis for a strong capstone project, culminating in the finalization of the capstone proposal that meets the expectations of the concentration.

HSMP 7010 Foundations in Health Services Research 1.0 cr.
(Spring, Fall) Restriction: Permission of instructor required
Introduces students to the academic health services research literature. This seminar course requires students to participate in small seminars led by faculty on different health services research topics plus attending larger HSMP departmental seminars. Evaluation is based on weekly papers.

HSMP 7601 Research Design and Proposal Preparation 3.0 cr.

(Fall) Prereq: Upper division course in statistics
Research as a systematic method for examining questions derived from related theory and/or health service practice. Major focus is on the logic of causal inference, including the formulation of testable hypotheses relating to health services organization and management, the design of methods and measures to facilitate study.

HSMP 7603 Advanced Public Health Strategic Planning and Management **3.0 cr.**
(Spring) Restriction: Offered in even years.
This doctoral level course examines the theory and practice of strategic planning and management for governments, public agencies, nonprofit organizations, and community collaborations engaged in the mission of improving the public's health.

HSMP 7605 Managing a Learning Healthcare System: From Theory to Practice **3.0 cr.**
Restriction: Offered in variable terms and years.
How to implement and manage a Learning Healthcare System (LHS) including history, current state and future directions. Systems theories, LHS researchers core competencies, challenges and solutions for creating work environments supportive of learning and evidence-based practices and policies will be explored.

HSMP 7607 Methods in Health Services Research I **3.0 cr.**
(Spring) Prereq: BIOS 6611
The first of a two-course sequence in empirical methods in health services research. The statistical theory underlying basic empirical methods and the thoughtful implementation/practice of these methods is emphasized. Topics covered include: OLS, Gauss-Markov assumptions, logit/probit. Stata will be used.

HSMP 7609 Methods in Health Services Research II **3.0 cr.**
(Fall) Prereq: HSMP 7607, enrolled in PhD or DrPH or permission of instructor
Students will learn how to specify and estimate econometric models to test theory-driven hypotheses. The course builds on HSMP 7607 and covers advanced methods related to panel/longitudinal, multinomial, survival, and count data models. Stata software will be used.

HSMP 8990 Doctoral Thesis - Health Systems Management and Policy **1.0-10.0 cr.**
(Spring, Summer, Fall)
Doctoral thesis work in Health Systems Management and Policy.

POPULATION MENTAL HEALTH AND WELL-BEING

PMHW 6601 Mental Health **3.0 cr.**
(Spring, Fall) This course examines mental health and substance abuse recognizing that the promotion of well-being by preventing mental health disorders and substance addictions is as important as intervention and treatment. Etiology, prevalence, and impact of mental health and substance abuse disorders by culture, ethnicity and gender are discussed.

PMHW 6620 Mental Health Systems and Policy **3.0 cr.**
(Spring) This course will examine existing policies related to behavioral health, compare structures of behavioral healthcare delivery and explore innovations in the field of behavioral health and integrated care models.

PMHW 6621 Mental Health and Wellbeing Promotion **3.0 cr.**
(Summer, Fall) Understanding the basis of the field of positive psychology and its role in public health, key dimensions of well-being and their implications to physical and mental health outcomes, mental health and well-being research and practice, strategies to enhance well-being and prevent and/or treat mental health and substance use disorders.

PMHW 6622 Opioid Use, Overdose and Public Health **1.0 cr.**
(Summer) This course will discuss the physiologic and behavioral effects of opioid use and opioid use disorder, factors contributing to the modern opioid epidemic in the U.S., and diverse public health interventions and policy approaches to preventing harm from opioid use.

PMHW 6625 Substance Use: A Public Health Perspective **3.0 cr.**
(Fall) Restriction: Offered even years.
This course introduces substance use epidemiology, policies, prevention interventions, treatment approaches and innovations in substance use research as well as examining factors influencing health disparities in substance use outcomes.

PMHW 6627 Mental Health and Technology **1.0 cr.**
(Summer) This course will examine the use of technology and methods to evaluate applications of technology to mental health and substance use treatment and prevention, ethical issues associated with technological applications in mental health, methods for enhancing user engagement, and technology options for application in this area of public health.

PUBLIC HEALTH – GENERAL

PUBH 5910 Race, History and Health in Brazil **3.0 cr.**
(Spring) Cross-listed with HEHE 5910
This course is a 10-day study abroad program in which students will be immersed in the history, culture, and everyday lives of Afro-Brazilians in Salvador, Brazil. The program combines homestays with Brazilian families with classroom and field experiences. Guest lectures from Brazilian experts with discuss topics such as the nation's history, health, politics, music, religion, education, and Carnival. Activities will focus on the interplay of race and health to better understand the lived experiences and rich past of Afro-Brazilians.

PUBH 5950 CU Anschutz in the United Kingdom: The Makings of Modern Public Health **3.0 cr.**
(Summer) Modern public Health was forged through a complex interplay of scientific discovery, social reform, political action, and struggles over power and human rights. Few countries illustrate these dynamics more clearly than the United Kingdom. This immersive course examines the historical foundations of modern public health through site visits, discussions, and experiential learning across England and Scotland.

PUBH 6600 Foundations in Public Health **2.0 cr.**
(Spring, Summer, Fall) This course examines the historical and conceptual bases of public health, the key issues and problems faced by the public health system, and the tools available for the protection and enhancement of the public's health.

PUBH 6606 MPH Practicum **2.0 cr.**
(Spring, Summer, Fall) Prereq: PUBH 6600 and successful completion of 18 credits including 3 additional core courses; Restriction: Student must be in good academic standing to enroll. Only open to MPH Students. Instructor consent required.
All MPH concentrations require students to successfully complete a practicum in which the student demonstrates competencies and integrates knowledge. It is intended to enrich student's experience by providing an opportunity to apply theory and skills in a public health setting.

PUBH 6615 Public Health and Social Work Integrative Seminar **2.0 cr.**
(Summer AND Fall) Restriction: This course is only open to DU MSW/MPH dual degree students. The course starts in summer and continues through fall.
This course provides a foundation for understanding, embracing and communicating about Public Health and Social Work as an integrated profession. It integrates theory and skills of the social work and public health professions and engages students in critical thinking about their potential for promoting social justice and health equity.

PUBH 6625 Anti-Oppressive Practice and Research in Public Health **2.0 cr.**
(Spring) Restriction: Offered in variable years.

This course provides an overview of systems of oppression and situates public health as an institution that inadvertently maintains these systems. Students will develop skills to be anti-oppressive in their work as public health researchers and practitioners to disrupt systems of oppression.

PUBH 6650 Practical Training for International Students **0.5 cr.**
(Spring, Summer, Fall) Restriction: This course is restricted to international students only. Credit for this course cannot be applied to a degree.
Students complete a minimum for 45 hours of field work in a public health setting. The student's field placement must be approved through International Student & Scholar Services.

PUBH 6651 MPH Research Paper **1.0-2.0 cr.**
(Spring, Summer, Fall) Prereq: BIOS 6601, CBHS 6610 or CBHS 6611, EHOH 6614, HSMP 6601, EPID 6630, PUBH 6600 and permission of instructor.
Independent research project resulting in a publishable paper. All projects will involve the analysis of primary or secondary data.

PUBH 6655 Public Health Ethics **1.0 cr.**
(Fall) This course provides a short introduction to public health ethics. After addressing several fundamental concepts and approach to the field, the remainder of the course focuses on ethical problems that arise out of the three core functions of public health. This framing ensures broad coverage in ethical problems across public health practice and policy.

PUBH 6670 Special Topics: Public Health **1.0-3.0 cr.**
(Spring, Summer, Fall) Special interest areas of current public health research and practice are presented and analyzed. The course format is lecture and discussion or seminar. Check the CSPH website for offerings and topics for this course each semester.

PUBH 6840 Independent Study: Public Health **1.0-3.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of department required
Faculty directed independent study in topics related to public health.

PUBH 6842 DrPH Seminar **1.0 cr.**
(Spring, Fall) Restriction: Enrollment in DrPH or permission of instructor.
This doctoral level course will address theory and practice at a level beyond that covered in Master's level courses. Students will acquire advanced skills in developing, testing, and applying theory and methods to public health problems.

PUBH 6850 DrPH Practicum **2.0-4.0 cr.**
(Spring, Summer, Fall) Restriction: Permission of instructor
DrPH Practicum is minimum 240 hours field experience under joint direction of CSPH Faculty mentor and practicing professional in community with leadership experience in public health agency. Written report/oral presentation specifying activities/ products/outcomes of experience required upon practicum hours completion.

PUBH 6991 MPH Capstone Integration **1.0 cr.**
(Spring, Summer, Fall) Prereq or Coreq: BIOS 6990/CBHS 6990/EHOH 6990/EPID 6990 or HSMP 6990 and permission of instructor.
MPH Capstone Integration will focus on interaction between MPH students from across concentrations to build communication skills and facilitate the students' integration of their projects within the broader scope of public health.

COLORADO SCHOOL OF PUBLIC HEALTH- COLORADO STATE UNIVERSITY

AGRICULTURE

AGRI 5000 Advanced Issues in Agriculture **3.0 cr.**
(Fall) Scientific, technical, cultural and social issues facing agriculture, and their interrelationships.

AGRI 5460 Principles of Cooperative Extension **3.0 cr.**
(Spring, Summer, Fall) Traditional and contemporary delivery systems of Cooperative Extension emphasizing structures of non- formal education.

AGRI 5470 Delivery of Co-operative Extension Programs **4.0 cr.**
(Spring) Prereq: Written consent of instructor.
Methods, techniques, and procedures in planning, implementation, and deliver of Cooperative Extension programs.

AGRI 6950 Independent Study- Agriculture **1.0-18.0 cr.**
(Spring, Summer, Fall) Independent study in agriculture.

AGRICULTURAL AND RESOURCE ECOMONICS

AREC 5720 Social Benefit-Cost Analysis **3.0 cr.**
(Fall) Restriction: Credit will only be given for either AREC 5720 or HSMP 6609. Prerequisite: BIOS 6601, PBHC 5600, CHBH 6120 or equivalent.
Theory and application of concepts relating to social benefit cost analysis of public projects and policies intended to promote social welfare and economic growth.

ANIMAL SCIENCES

ANEQ 5670 HAACP Meat Safety **2.0 cr.**
(Spring) Prereq: ANEQ 460.
Control of health problems in meat products through hazard analysis critical control point (HAACP) and total quality management (TQM) practices.

ANEQ 6760 Molecular Approach to Food Safety **3.0 cr.**
(Spring) Restriction: Offered in odd years. Prereq: MIP 300 and MIP 301 or MIP 334 and MIP 335.
Molecular subtyping, tracking, and control; molecular ecology and evolution of food-borne pathogens; molecular pathogenesis of food-borne disease.

ANTHROPOLOGY

ANTP 5050 Resilience, Well-Being and Social Justice **3.0 cr.**
(Spring) This course draws on literature from anthropology, sociology, political science, economics, public health, environmental studies, human ecology, journalism, psychology, nursing, history and ethnic studies. It will also engage with the practice-based work of NGOs and governments.

ANTP 5200 Women, Health, and Culture **3.0 cr.**
(Spring) Women's experiences and interpretations of their health; cultural, political, and economic forces affecting women's health.

ANTP 5320 Culture of Disaster **3.0 cr.**
(Spring, Fall) This course is designed to introduce students to the way social scientists study disaster.

ANTP 5380 Food, Hunger and Culture **3.0 cr.**
(Spring) This course will explore cultural and social understandings of food cross-culturally, including the symbolic meanings that people attribute to food and its consumption. Critically investigates the intersecting political, economic, social and cultural influences on hunger, malnutrition and other health concerns associated with food and nutrition globally. Assesses applied anthropological approaches to reducing hunger and other nutrition related health problems.

ANTP 5400 Medical Anthropology **3.0 cr.**
(Spring) Restriction: Offered in even
years.
Cultural and bio-cultural approaches to health, illness, and the body; theory and application in medical anthropology.

ANTP 5450 Global Mental Health – Theory and Method **4.0 cr.**
(Fall) Restriction: Offered in odd years.
Cross-cultural study of mental health and healing; cultural, clinical, and biological perspectives; integrations of theory and method.

ANTP 5710 Anthropology and Global Health **3.0 cr.**
(Fall) Restrictions: Offered in even years. Credit will only be given for one of the following courses: PSCY 5170, ANTP 5710 or CBHS 6619
Global health concerns and problems including poverty, urbanization, malnutrition, diet, war and refugees, climate, and environment.

ANTP 6950 Independent Study: Anthropology **1.0-18.0 cr.**
(Summer) Prerequisite: Graduate level
Independent Study: Anthropology.

EDUCATION RESEARCH METHODS

EDRM 7010 Applied Linear Models **3.0 cr.**
(Spring, Fall) Prereq: EDRM 6060
General Linear model applications in educational research emphasizing conceptual understanding and characteristics of non-experimental designs.

EDRM 7030 Appl Longitudinal Data Analysis **3.0 cr.**
(Fall) Prereq: EDRM 7010
Methods and empirical applications of individual growth modeling and discrete-time event history analysis in educational research.

ENVIRONMENTAL AND RADIOLOGICAL HEALTH SCIENCES

ERHS 5010 Disease in Public Health Action **2.0 cr.**
(Fall) Biological basis of underlying major public health problems, focusing on risk factors, pathogenesis, and pathophysiology plus a review of the anatomy and physiology of selected major organ systems and associated diseases, clinical terminology, the underlying biological mechanisms and biological impact of disease in public health.

ERHS 5350 R Programming for Research **3.0 cr.**
(Fall) In-depth instruction on data collection, data management, programming and visualization using data examples relevant to academic research.

ERHS 5600 Health Impact Assessment **2.0 cr.**
(Fall) Application of a Health Impact Assessment approach to systematically judge the potential health effects of a policy or project and the distribution of those effects within the population.

ERHS 5730 Design and Conduct of Epidemiologic Research **2.0 cr.**
(Spring) Prerequisites: Introductory Epidemiology course or equivalent
This course prepares students to design and implement an epidemiologic study from the development of a research question and study design through data analysis and dissemination.

ERHS 5810 Experimental Course-ERHS **1.0-5.0 cr.**
(Spring, Summer, Fall) Experimental course in environmental and radiological health sciences.

ERHS 6380 Geospatial Analysis for Environmental Health **3.0 cr.**
(Fall) Prereq:: BIOS 6601/BIOS 6602 or BIOS 6611/BIOS 6612 or a year of equivalent graduate-level statistics or permission of instructor. Cross-listed: EPID/EHOH 6656
Introduction to acquisition, organization and analysis of geospatial data relevant to public health. Data sources covered include ground-based air quality and weather sensors, remote sensing (satellite) products, climate and weather model output and data on water quality, traffic and mobility, and housing and sociodemographics.

ERHS 6400 CSU Advanced Epidemiology **3.0 cr.**
(Spring) Prereq: PBHC 5750 and PBHC 5600
In-depth exploration of advanced epidemiologic methods.

ERHS 6580 Environmental/Occupational Epidemiology **2.0 cr.**
(Spring) Restriction: Credit will only be given for either ERHS 6580 or EHOH 6617. Offered in odd years. Prereq: ERHS 5320
Epidemiologic analysis of effects of exposure to environmental and occupational health hazards.

ERHS 6930 Research Seminar – Epidemiology **1.0 cr.**
(Spring, Fall) Presentation of student research and discussion of publications from scientific literature.

ERHS 6950 Independent Study – Epidemiology **1.0-5.0 cr.**
(Spring, Summer, Fall) Specialized study in epidemiology under supervision of faculty.

ERHS 7320 Advanced Epidemiological Analysis **2.0 cr.**
(Fall) Prereq: ERHS 6400 Advanced Epidemiology, ERHS 5350 R Programming or PBHC 5340 SAS and Epidemiologic Data Management, STAS 5110 Design and Data Analysis for Researchers or PBHC 5600/BIOS 6601 or equivalent courses and experience.
Course will complement the student's training in epidemiological methods and statistical regression methods, providing the opportunity to implement their theoretical expertise through designing and conducting advanced epidemiologic research analysis, implemented through a statistical programming language.

ERHS 7400 Advanced Epidemiology Methods **3.0 cr.**
(Fall) Restriction: Credit will only be given for one of the following courses: ERHS 7400 or EPID 7631 Prereq: PHBC 5700 Epidemiologic Methods, ERHS 6400 Advanced Epidemiology, STAS 5110 and STAT 512 Design and Data Analysis for Researchers I and II or PBHC 5600/BIOS 6601 and BIOS 6602 or equivalent courses and experience.
Understanding the theoretical basis of currently used epidemiologic methods and also to help acquire an understanding of the process of developing novel approaches. Topics include methods for analysis of the causal effects of time-varying exposures, mediation, instrumental variable analysis, natural experiments and other methods.

ETHNIC STUDIES

ETHS 5020 Research Methods **3.0 cr.**
(Fall) This course focuses on gaining a basic understanding of qualitative inquiry with a particular emphasis on narrative research, phenomenology, grounded theory, ethnography and case study. Interpretive frameworks such as feminist theories, critical ethnography and case study. Interpretive frameworks such as feminist theories, critical theory and critical race theory, queer theory and disability theories will be addressed.

ETHS 6950 Independent Study **1.0-18.0 cr.**
(Spring, Summer, Fall) Independent study in ethnic studies.

FOOD SCIENCE AND HUMAN NUTRITION

FSHN 5000 Food System, Nutrition, Food Security **2.0 cr.**
(Fall) Prereq: FSHN 350
Global and local food systems and their potential influence on nutrition and food security.

FSHN 5200 Advanced Medical Nutrition Therapy **3.0 cr.**
(Summer) Prereq: FSHN 5500 or 5510
Role of nutrition in etiology and treatment of selected disorders.

FSHN 5250 Nutrition Education, Theory and Practice **2.0 cr.**
(Fall) Prereq: FSHN 350. Restriction: Instructor permission if not in Public Nutrition focus area.
Examination of current theories, skills, and models used in nutrition education programs as preparation for research and practice.

FSHN 5300 Principles of Nutrition Science and Metabolism **3.0 cr.**
(Fall) This course provides an understanding of the fundamental scientific concepts of human nutrition including digestion, absorption, metabolism, and function of macro- and micronutrients as they relate to maintenance of cellular homeostasis, human health and disease.

FSHN 5500 Advanced Nutritional Science I **3.0 cr.**
(Spring) Prereq: BC 351 or BC 403: FSHN 350.
Protein, vitamin, mineral metabolism: human studies, animal models.

FSHN 5510 Advanced Nutritional Science II **3.0 cr.**
(Fall) Prereq: BC 351 or BC 403; FSHN 350. Restriction: Instructor permission if not in Public Nutrition focus area. Carbohydrate, lipid, energy metabolism; human studies, animal models.

FSHN 6200 Community Nutrition Plan and Evaluation **3.0 cr.**
(Spring) Prereq: FSHN 350.
Community nutrition assessment; nutrition program planning and evaluation; nutrition policy analysis.

FSHN 6280 Advanced Nutrition Counseling Techniques **2.0 cr.**
(Fall) Principles, strategies, and techniques for interviewing, assessing, and providing nutrition counseling in community settings.

FSHN 6400 Select Topics in Nutritional Epidemiology **2.0 cr.**
(Fall) Prereq: FSHN 350; STAT 301 or STAT 307/ERHS 307
Topics in nutritional epidemiology, study design, interpretation of findings, linkage of data to action.

FSHN 6500 Recent Dev in Human Nutrition – Proteins **2.0 cr.**
(Fall) Restriction: Offered in even years. Prereq: FSHN 5500
The purpose of this course is to read and discuss the recent literature on nutrition topics that are of emerging

importance and relevance to major health promotion/disease prevention issues. This course covers protein, vitamins, and minerals.

FSHN 6503 Global Nutrition Programs **2.0 cr.**
(Fall) Restriction: Offered in odd years.
This course will analyze global nutrition problems relating to hunger, malnutrition, and food security. Students will learn about current policies, approaches and research trying to address these issues in different global contexts.

FSHN 6501 Human Nutrition-Carbohydrates, Lipids, Energy **2.0 cr.**
(Fall) Restriction: Offered in odd years. Prereq: FSHN 350 Restriction: Instructor permission if not in Public Nutrition focus area.
Appraisal of literature on human nutritional status.

FSHN 6502 Developments in Human Nutrition-Genomics, Proteomics and Metabolomics **2.0 cr.**
(Spring) Restriction: Offered in even years. Prereq: Organic Chemistry; Biochemistry; 300-level human nutrition course; FSHN 5510
Students will learn about recent human nutrition developments pertaining to genomics, proteomics and metabolomics.

FSHN 6600 Women's Issues in Lifecycle: Nutrition **2.0 cr.**
(Spring) Prereq: FSHN 459.
Current nutritional issues related to selected stages of the lifecycle compared to normal adult nutritional needs.

FSHN 6950 Independent Study: Food Science **1.0-18.0 cr.**
(Spring, Summer, Fall) Restrictions: Instructor permission if not in Public Health Nutrition focus area.
Specialized study in food science under supervision of Faculty.

FSHN 6951 Independent Study: Nutrition **1.0-18.0 cr.**
(Spring, Summer, Fall) Restrictions: Instructor permission if not in Public Health Nutrition focus area.
Specialized study in nutrition under supervision of Faculty.

FOOD TECHNOLOGY

FTEC 5720 Food Biotechnology **2.0 cr.**
(Spring) Restriction: Offered in odd years.
Interrelationships among microorganisms, food processing methods, advances in biotechnology and food quality, spoilage, shelf-life and safety.

FTEC 5740 Current Issues in Food Safety **2.0 cr.**
(Spring) Current food safety issues from field to table; microbiological, consumer, processing and agricultural issues.

FISH AND WILDLIFE

FWLD 5440 Ecotoxicology **3.0 cr.**
(Spring) Prereq: Statistics and introductory biology required.
The purpose of this course is to provide students with an overview of ecological and environmental aspects of toxicology and pollution ecology. The course will emphasize population, community, and ecosystem responses to contaminants and other anthropogenic stressor.

GLOBAL ENVIRONMENTAL SUSTAINABILITY

GESC 5200 Issues in Global Environmental Sustainability **3.0 cr.**
(Spring) This course introduces the concept of sustainability, its various definitions, and its current societal influences. Students explore how sustainability affects different disciplines and understand the connections of sustainability within their chosen field. Students achieve a holistic understanding of environmental, social, and economic sustainability through individual research work and interdisciplinary collaboration.

HUMAN DEVELOPMENT AND FAMILY STUDIES

HDFS 5920 Grant Writing: Human Services **3.0 cr.**
(Fall) Prereq: STAT 201
Writing grant proposals that support client services or for research

HDFS 6070 Prevention Science Across the Life-Span **3.0 cr.**
(Spring, Fall) Prereq: One of the following: CBHS 6610; CHBH 5090; HESC 5560; PBHC 5500
Overview of prevention theory, methods and standards of evidence. Introduction to efficacious and effective interventions across the lifespan.

HDFS 6080 Program Design and Implementation **3.0 cr.**
(Spring) Restrictions: Credit will not be given for both HDFS 6080 and CBHS 6613 or CHBH 6100. HDFS 6080 cannot substitute for CBHS 6613 or CHBH 6100.
This course provides students with a theoretical and practical foundation for selecting and implementing effective prevention strategies across multiple settings such as schools and community-based organizations.

HDFS 6090 Prevention Program Evaluation **3.0 cr.**
(Spring) Restrictions: Credit will not be given for both HDFS 6090 and CBHS 6612 or CHBH 6100. HDFS 6090 cannot substitute for CBHS 6612 or CHBH 6100.
This course provides students with a theoretical and practical foundation for evaluating the impact of prevention strategies across multiple settings such as schools and community-based organizations.

HDFS 6100 Risk and Resilience **3.0 cr.**
(Fall) Restriction: Offered in odd years. Prereq: 6 cr. in behavioral sciences.
Risk and resilience processes in human development.

HDFS 6120 Adolescent Development **3.0 cr.**
(Fall) Restriction: Offered in odd years. Prereq: One course in adolescence; three cr. of upper-division behavioral sciences; or permission of instructor.
Course focuses on current theoretical and empirical issues in the field of adolescent development. Students will critically evaluate current research in the field of adolescent development, debate central issues, and gain in-depth knowledge of one topic of their choice.

HDFS 6500 Research Methods II **3.0 cr.**
(Fall) Restriction: Credit will not be given for both HDFS 6500 and STAS 5110.
This course covers a range of quantitative methods with an emphasis on parametric inferential statistics. It will focus on parametric versions of both univariate and multivariate statistics along with important assumptions of each test statistic, when each should and should not be used, and how to compute each test statistic using SPSS.

HDFS 6950 Independent Study- Human Development **1-18 cr.**
(Spring, Summer, Fall) Independent study in human development and family studies.

HEALTH AND EXERCISE SCIENCE

HESC 6000 Data Analysis and Research Design **3.0 cr.**
(Fall) Restriction: Instructor permission if not in Health and Exercise Science focus area. Prerequisite of one course in statistics.
Methods of research applied to health and exercise science including quantitative techniques of analysis and research design.

HESC 6001 Research Design **3.0 cr.**
(Fall) This course will discuss research and academic integrity, the responsible conduct of science, research and experimental design, an overview of basic and scientific writing skills, how to read/interpret scientific writing, and inferential statistics.

HESC 6450 Epidemiology of Health and Physical Activity **3.0 cr.**
(Spring) Prereq: HES 600.
Foundation in chronic disease epidemiology that will enable students to evaluate the current epidemiologic literature.

HESC 6950 Independent Study: Health **1.0-18.0 cr.**
(Spring, Summer, Fall) Restriction: Instructor permission if not in Health and Exercise Science focus area.
Independent study in health.

HORTICULTURE

HORT 5210 Horticulture and Human Health and Well-Being **3.0 cr.**
(Spring, Fall) Critically examine the impact of principles and practices of horticulture on human health and well-being.

INTERNATIONAL EDUCATION

IE00 6790 Advanced International Development **3.0 cr.**
(Spring) In-depth interdisciplinary analysis of theoretical and practical issues in implementing economic and community-based international development programs.

JOURNALISM AND TECHNICAL COMMUNICATION

JTCM 5010 Process and Effects of Communication **4.0 cr.**
(Fall) Prereq: JTCM 5000
Examination of communication theory including communicator credibility, messages, channels, audiences and information, behavior and attitude change.

JTCM 6140 Public Communication Campaigns **3.0 cr.**
(Fall) Conceptual, methodological issues and decisions underpinning determination of communication campaign effects, planning, implementation and evaluation.

JTCM 6300 Health Communication **3.0 cr.**
(Spring) Role of health communication in public health programs and campaigns

JTCM 6500 Strategic Communication **3.0 cr.**
(Spring) Theoretical and practical management techniques for public relations campaigns including societal, ethical, and legal issues involved.

JTCM 6600 Communication/Technology Transfer **3.0 cr.**
(Fall) Communication's role in technology transfer as related to nature, process, and effects of technology transfer, knowledge dissemination, and utilization.

JTCM 6610 Information Design 3.0 cr.
(Spring) Theoretical and empirical review of creation, presentation storage, and distribution of information.

JTCM 6700 Social Processes of Risk 3.0 cr.
(Spring) Provides students with a broad entry to this sprawling and cross-disciplinary literature, from seminal work that served to coalesce study of risk perception and risk communication to the most current literature that's redefining this field and charting its future.

JTCM 6950 Independent Study: Communication 1.0-3.0 cr.
(Spring, Summer, Fall) Independent study in Journalism and Technical Communication.

MICROBIOLOGY IMMUNOLOGY AND PATHOLOGY

MIPO 5550 Principles & Mechanism of Disease 3.0 cr.
(Fall) Prereq: BMS 300; coursework in histology, physiology and anatomy. Restriction: Permission of instructor needed if prerequisites not met.
Principles of disease processes; emphasis on reactivity of the diseased cell, tissue, organ or organism.

MIPO 5801 Infectious Diseases and Social Equity 3.0 cr.
(Spring) This course explores the social forces underlying the distribution and outcomes of infectious diseases throughout human history. During the course, we will review the structural vulnerability and violence linked to modern human groups.

NATURAL RESOURCES RECREATION AND TOURISM

NRRT 6650 Survey Research and Analysis 3.0 cr.
(Spring) Prerequisite: Statistics course
Survey research, design and analysis in human dimensions of natural resources.

PUBLIC HEALTH

PBHC 5160 Public Health Foundations 2.0 cr.
(Fall) This course will provide students with an overview of key concepts underlying public health in historical and contemporary perspective. The course will include attention to the main functions of public health as well as ethical principles associated with public health practice.

PBHC 5200 Healthcare Systems, Policy and Management 3.0 cr.
(Spring) This course provides an overview of the U.S. healthcare system, its key components and their functional relationships. Students learn about the organization and financing of the U.S. system, how health policy is developed and implemented, and key principles of leadership and management for health professionals.

PBHC 5300 Environmental Public Health and Policy 3.0 cr.
(Spring) This course provides a broad understanding of the factors that influence natural, urban, rural, and workplace environments as well as human health risks from chemical, biological, and physical agents.

PBHC 5340 Public Health Data Management Using SAS 3.0 cr.
(Fall) Students will learn how to use SAS software for data management to prepare data for analyses. Main topics include importing and exporting data, variable and dataset manipulations. Introductions to producing reports, basic statistics, figures and SAS macros are also covered.

PBHC 5400 One Health in Public Health **3.0 cr.**
(Fall) This course will examine the interconnectedness of environmental, human and animal health. Issues will be addressed from the perspectives of public health, medicine, veterinary science, and ecology bearing in mind the implications for health policy.

PBHC 5500 Applied Social and Community Factors in Health **3.0 cr.**
(Fall) Prereq: Students can only receive credit for one of the following: PBHC 5500, HESC 5560, CBHS 6610 or CHBH 5090
This course reviews a wide range of behavior change theories used in public health promotion/disease prevention interventions. Development, implementation and evaluation of programs and policies to promote and sustain healthy environments and lifestyles are examined.

PBHC 5530 Global Health Foundations **3.0 cr.**
(Fall) This course provides a broad overview of global health topics and enables students to appraise the current health status in a country using relevant health indicators; describe population diversity and possible inequalities; understand and critically assess the magnitude and likely causes of various health-related conditions and assess existing and plausible solutions.

PBHC 5540 Reimagining Global Health – Power to Practice **3.0 cr.**
(Spring) This course aims to analyze and evaluate various sectors within Global Health and provide students with a comprehensive understanding of the disparities that exist. It focuses on the colonial influence on the global health system and its impact on creating and reinforcing power imbalances. Students will gain a deeper insight into the underlying causes of these disparities and the ways in which they can be addressed. The course is designed to empower students with the knowledge and skills necessary to work towards a more equitable and just global health system.

PBHC 5550 Qualitative and Mixed Methods Evaluation **3.0 cr.**
(Spring) This course provides an overview of evaluation techniques, focusing on qualitative and mixed-methods research. It covers research designs, data collection, and program evaluation to measure the impact of public health initiatives.

PBHC 5555 Applied Field Research in Global Health **3.0 cr.**
(Summer) This course provides students with an opportunity to explore global health through collaborative learning and applied research. Students will examine how social, cultural, environmental, and structural factors influence health across contexts while developing skills in community-engaged research in global settings. Through cross-cultural collaboration, field-based learning, and applied research activities, students will investigate real-world public health issues and translate findings into meaningful products for academic, professional and community audiences.

PBHC 5600 Quantitative Methods in Public Health **3.0 cr.**
(Spring, Fall) Applied biostatistical methods including descriptive and statistical inference; odds ratio and relative risk, probability theory, parameter estimation, tests for comparing statistics of two or more groups, correlation and linear regression and overviews of multiple and logistic regression and survival analysis.

PBHC 5700 Epidemiology for Public Health **3.0 cr.**
(Fall) This course will provide an introduction to descriptive and analytic methods in epidemiology and their application to research and practice in public health.

PBHC 5720 GIS in Public Health **3.0 cr.**
(Fall) Students will gain an understanding of how spatial thinking and geospatial technologies can add context and insight into health issues at the local to global scales. Students will acquire fundamental skills in using various geospatial technologies to map and analyze health and other relevant data. Students will know how to produce cartographic products for publication or online distribution.

PBHC 5730 Exploring Social Epidemiology **3.0 cr.**
(Summer) Social epidemiology is the study of the connection between social exposures and population health. This course focuses on both theories and epidemiological methods relevant to social epidemiology including factors such as socioeconomic status, discrimination, working conditions, historical and current policies, neighborhood characteristics, and other elements that influence population health through a social perspective.

PBHC 5750 Epidemiological Research for Public Health **3.0 cr.**
(Spring) Prereq: PBHC 5600, PBHC 5700 and PBHC 5340 or equivalent.
Principles, concepts and methods for conducting ethical, valid and scientifically correct observational studies in epidemiological research. Lectures and practical experience reinforce hypothesis formulation, study design, data collection and management, analysis and publication strategies.

PBHC 6200 Developing a Practice of Public Health Leadership **1.0 cr.**
(Spring) Prereq: Students can only receive credit for one of the following: PBHC 6200, CBHS 6640 or CBHS 7020.
Leadership is an essential component in driving public health action. This course will facilitate the study of leadership theory and practice through a lens of social justice. This course will explore historical and contemporary movements and the leadership involved in creating policies, systems and programs in public health. Students will gain skills in understanding and communicating methods of leadership in public health and will develop a vision for their own leadership practice.

PBHC 6300 Field Methods of Disease Investigation **3.0 cr.**
(Spring, Fall) Prereq: One course in epidemiology
The application of epidemiologic tools to collect, analyze and interpret data and test results important for disease surveillance and investigation.

PBHC 6420 One Health in Communities **3.0 cr.**
(Spring) One Health is a transdisciplinary concept that focuses on issues at the intersection of human, environmental, and animal health. The One Healthy City Project will bring together interdisciplinary graduate and professional students with the goal of applying One Health knowledge to enhance our local community. Faculty advisors and liaisons from the City of Fort Collins will present a series of seminars that provide the context for aspects of city planning, nature in the city, and incorporation of One Health concepts suggestions that will support the development of Fort Collins as a city.

PBHC 6440 Physical Activity and Public Health **3.0 cr.**
(Fall) Explore the role of physical activity in public health. History of physical activity in public health, basic exercise physiology and kinesiology principles, and effectively promote and measure physical activity in a variety of populations. Discuss physical activity in various settings, and explore how programs are effectively planned, implemented and evaluated.

PBHC 6450 Team Science **3.0 cr.**
(Spring) This course will contextualize Team Science within contemporary social, economic, and political contexts. It will explore challenges and opportunities for inter-and transdisciplinary research and cross-sectoral initiatives. It will also introduce students to tools and frameworks for collaborative science and provide opportunities for students to apply and practice knowledge gained in the course.

PBHC 6500 Health Promotion Program **3.0 cr.**
(Spring) Development of skills in health promotion program design, implementation and evaluation.

PBHC 6600 Quantitative Methods in Public Health II **3.0 cr.**
(Spring) Prereq: PBHC 5600
A continuation of PBHC 5600 extending the basic principles of descriptive and inferential statistics to modeling more complex relationships using linear regression, logistic regression, and Cox regression. The statistical package SAS is used extensively.

PBHC 6860 Public Health Practicum **2.0 cr.**
(Fall, Spring, Summer) Prereq: PBHC 5160 or equivalent and successful completion of 18 credits including 3 additional core courses. Restriction: Permission of instructor required. Student must be in good academic standing to enroll. Only open to MPH students.
All MPH students are required to successfully complete a practicum in which the student demonstrates competencies and integrates knowledge. It is intended to enrich the student's experience by providing an opportunity to apply theory and skills in a public health setting.

PBHC 6920 Public Health Seminar - APE **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6921 Public Health Seminar - EPI **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6922 Public Health Seminar - GHHD **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6923 Public Health Seminar - HCOM **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6924 Public Health Seminar - PAHL **1.0-6.0 cr.**
(Fall, Spring, Summer) Credit will not be given for taking both EHOH 6640 and the Built Environment PBHC 6924 course.
Seminars pertaining to current public health issues. Topics will vary

PBHC 6925 Public Health Seminar - PHN **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6926 Public Health Seminar – Public Health **1.0-6.0 cr.**
(Fall, Spring, Summer) Seminars pertaining to current public health issues. Topics will vary.

PBHC 6950 CSU Public Health Independent Study **1.0-3.0 cr.**
(Fall, Spring, Summer) Restriction: Permission of instructor required
Faculty directed independent study in topics related to public health.

PBHC 6960 Public Health Group Study **1.0-18.0 cr.**
(Fall, Spring, Summer) Public Health Group Study at CSU. Topics will vary
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PBHC 6980 MPH Capstone - CSU **2.0 cr.**
(Fall, Spring, Summer) Restriction: Permission of instructor required
Capstone project for CSU Master of Public Health students.

PHILOSOPHY

PHLY 5640 Seminar in Animal Rights **3.0 cr.**
(Spring) Restriction: Offered in even years.
Contemporary issues concerning nature and moral status of non-human animals.

PHLY 6660 Science and Ethics **3.0 cr.**
(Spring) Restriction: Offered in odd years.
Science, skills, and beliefs directed at the maintenance and improvement of health for all people.

POLITICAL SCIENCE

POLS 6650 Public Policy Analysis **3.0 cr.**
(Spring) Restriction: Offered in odd years. Prereq: Previous or concurrent coursework in statistics
Course will help students develop skills that allow them to define and critically analyze policy issues/problems, specify how decisions will be made regarding analysis of problems, evaluate alternative methods/solutions, and assess the means and costs of implementing policies.

POLS 6700 Politics of the Environment and Sustainability **3.0 cr.**
(Fall) Prereq: Statistics and introductory biology required
This course addresses the following questions: What is the relationship between nature and society? What interventions/strategies are proposed? How are the two related? Included is the discussion of the different approaches to managing/governing nature.

PSYCHOLOGY

PSCY 5150 Women's Health **3.0 cr.**
(Fall) Restriction: Offered in odd years.
Current issues in women's health.

PSCY 5170 Perspectives in Global Health **3.0 cr.**
(Spring) Restriction: Credit will only be given for one of the following courses: PSCY 5170, ANTP 5710, CBHS 6619
Science, skills, and beliefs directed at the maintenance and improvement of health for all people

PSCY 6000 Health Psychology **3.0 cr.**
(Fall) This course will examine the connections between humans' cognitions, emotions, and behaviors and their mental and physical health.

PSCY 6530 Methods of Research in Psychology II **4.0 cr.**
(Spring) Prerequisite: BIOS 6601 or equivalent.
Students will develop a strong understanding of the general linear model and learn how to use the model to answer substantive questions in their field of research. The course will include statistical analyses.

SOCIOLOGY

SOCO 5620 Sociology of Food Systems and Agriculture **3.0 cr.**
(Spring, Fall) This course is designed to explore how agricultural choices generate intended and unintended consequences for human communities and the natural environment.

SOCO 6620 Sociological Policy Analysis **3.0 cr.**
(Spring) The main objective of this course is to develop an understanding of (1) the processes by which societies come to perceive of particular issues as social problems and formulate policies in response to these perceptions; and (2) the factors that affect these processes.

SOCO 6950 Independent Study – Sociology **1.0-6.0 cr.**
(Spring, Summer, Fall) Independent study in sociology.

COMMUNICATION

SPCM 5380 Relating and Organizing for Health **3.0 cr.**
(Fall) Restriction: Offered in odd years.
Organizational, interpersonal, and intercultural dimensions of communicating in public health clinical settings.

SPCM 6320 Theory of Interpersonal Comm **3.0 cr.**
(Fall) Theories of communication in development, maintenance, and deterioration of friendship, couple, family, group, and business relationships.

SPCM 6390 Communication Theory 3.0 cr.
(Fall) Examination of communication philosophies and perspectives; analysis of modern theories of face-to-face communication.

SOCIAL WORK

SOWK 5300 Anti-Oppressive Social Work Practice 3.0 cr.
(Spring, Summer, Fall) Developing anti-oppressive practice with a focus on multiculturalism and social justice advocacy. Critically evaluate personal traits, attitudes and values regarding diversity and identity formation while exploring theoretical frameworks for understanding oppression. Analyze the relationships among power, privilege and oppression.

STATISTICS

STAS 5110 Design and Data Analysis for Researchers 4.0 cr.
(Fall) Prerequisite: Statistics course Restriction: Credit will not be given for both HDFS 6500 and STAS 5110. Statistical methods for experimenters and researchers emphasizing design and analysis of experiments using R software.

SYSTEMS ENGINEERING

SYSE 5520 Humanitarian Engineering 3.0 cr.
(Summer) This course introduces engineering skills in the context of solutions for developing communities, with emphasis placed on a systems approach. Methods and implementation used in Humanitarian Engineering, including relevant community development methodologies, appropriate design, development strategy, sustainable community guidelines, emergency response, and design for vulnerable communities.

CLINICAL SCIENCES

VSCS 5330 Epidemiologic Infectious Disease/Zoonosis 3.0 cr.
(Spring) Restriction: Credit will only be given for this course of EPID 6635.
Epidemiologic features of infectious and parasitic diseases that have a major impact on community medicine.

VSCS 6480 Food Animal Production and Food Safety 2.0 cr.
(Spring) Basic orientation to food animal production units, heard health concepts, and issues of food safety from pre-harvest through processing and distribution.

VSCS 7950 Independent Study – Epidemiology 1.0-5.0 cr.
(Spring, Summer, Fall) Specialized study in epidemiology under supervision of faculty.

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ANTHROPOLOGY

ANTR 5000 Immigrant and Refugee Health **3.0 cr.**
(Fall) This course explores migration and health in global perspectives, focusing on the sociocultural, political, and economic factors contributing to health disparities for refugees, asylum seekers, and undocumented migrants.

COMMUNITY HEALTH

CHBH 5050 Health Communications and the Media **3.0 cr.**
Restriction: Offered in variable terms and years.
Focuses on the design, production, evaluation and acquisition of appropriate media and materials for health education/promotion programs.

CHBH 5080 UNC Special Topics **3.0 cr.**
Restriction: Offered in variable terms and years.
This course will be a forum to discuss important topics related to community and behavioral health. Such topic areas can include: preparation for field work in culturally diverse communities, historical trauma and health and others. Topics offered will change by semester, see specific schedule.

CHBH 5090 Behavior Change Theories **3.0 cr.**
(Fall) Review theories of behavior and behavior change as they relate to current health issues. Health behavior change models will be examined and applied.

CHBH 5150 Health Education, Literacy and Grant Writing **3.0 cr.**
(Fall) This course equips students to design, deliver and evaluate community health education using evidence-based pedagogical approaches and health literacy principles. Students will build a comprehensive grant-writing portfolio that includes evaluation planning, a persuasive pitch, and strategies for program impact and sustainability. The course culminates in earning public health micro-credentials, providing transferable professional development skills.

CHBH 5200 UNC Foundations in Public Health **2.0 cr.**
(Fall) This course examines the historical and conceptual bases of public health, the key issues and problems faced by the public health system, and the tools available for the protection and enhancement of the public's health.

CHBH 5250 Contemporary Issues in School Health **3.0 cr.**
(Fall) This course examines the relationship between child/adolescent health and their school experience. The course will be organized around the eight components of the Coordinated School Health Program Model. Current issues and approaches to school health will also be presented

CHBH 5300 Strategies for Community Health Promotion **3.0 cr.**
(Spring) This course examines the effectiveness of a wide range of community strategies used in health promotion/disease prevention programs.

CHBH 5320 Physical Activity and Public Health **3.0 cr.**
Restriction: Offered in variable terms and years.
An examination of physical activity and the public health implications of physical inactivity. Emphasis will be placed on epidemiologic evidence of physical activity benefits and chronic disease prevention.

CHBH 5330 Physical Activity Interventions in the Community **3.0 cr.**
(Spring) This course is designed to acquaint graduate students with theory-based interventions to increase participation in physical activity. The course will cover a variety of evidence-based approaches to physical activity promotion targeting various sub-populations and settings within the community.

CHBH 5350 Effective Community Health Engagement **3.0 cr.**
(Fall) Prereq: CHBH 5300 or consent of instructor.
This course will enable students to develop skills necessary to effectively work with and within a variety of communities to promote public health. Topics include historical impacts, effective theories and strategies, appropriate tools to consider and others.

CHBH 5500 Environmental Health **3.0 cr.**
(Spring) Investigate and discuss the relationships of environmental health problems to human health and welfare. Include sources of these problems, their recognition and control and current research studies.

CHBH 5680 Rural Community Health Issues **3.0 cr.**
(Summer) A study of social, economic, political, and cultural influences that impact the health of individuals and families in rural communities. This course focuses on improving health status and developing culturally appropriate and effective interventions and services in rural settings.

CHBH 5690 Rural Community Health Systems, Leadership and Advocacy **3.0 cr.**
(Summer) This course examines the policies, structures, and partnerships that shape healthcare and public health delivery in rural communities. Students will integrate public health, nursing, and medical perspectives to analyze complex challenges, strengthen leadership skills, and develop evidence-based advocacy action plans for systems-level change.

CHBH 5750 Public Health Issues in Reproductive Health **3.0 cr.**
(Summer)This course will examine reproductive health issues that impact society and public health. Topics include pregnancy, childbirth, teen pregnancy, sexually transmitted infections, birth control, infertility, abstinence only educational programs and comprehensive sexuality education.

CHBH 6100 Program Planning and Evaluation **3.0 cr.**
(Fall) Prereq: CHBH 5090 or consent of instructor.
Theories and practices of program planning and evaluation including needs assessment, planning approaches, selection of strategies, data collection and analysis, evaluation design, program implementation and utilization of evaluation data.

CHBH 6120 Statistical Applications in Public Health **3.0 cr.**
(Spring) Applied statistical methods for students in public health. Developing statistical literacy and an ability to perform basic statistics, data summarizations and hypothesis testing using statistical software will be emphasized.

CHBH 6150 Methods in Public Health Research and Evaluation **3.0 cr.**
(Fall) Prereq: CHBH 6120 or consent of instructor. Cannot apply both this course and CBHS 6612 towards the MPH degree.
Public health research methods, qualitative/quantitative research designs, data collection/analysis and program evaluation. Students will conduct an evaluation project with a local public health agency.

CHBH 6200 UNC Epidemiology **3.0 cr.**
(Fall) Epidemiological principles analyzed with an emphasis on selected topical issues, infectious and chronic/degenerative diseases, research design and analysis. Practical applications of statistical and epidemiological methods.

CHBH 6220 Directed Studies **1.0—4.0 cr.**
(Spring, Summer, Fall) Restriction: Instructor consent required.
Individualized investigation under the direct supervision of a faculty member. Minimum of 37.5 clock hours required per credit hour. Repeatable. Maximum concurrent enrollment is two times.

CHBH 6350 Policy, Advocacy, Leadership & Management in Community Health **3.0 cr.**
(Fall) Prereq: PUBH 6600 or consent of instructor.
Health policy, advocacy, leadership and management is a multidisciplinary field of public health practice that is concerned with the delivery, quality and costs of public health services.

CHBH 6860 Master of Public Health Capstone Project **2.0 cr.**
(Spring, Summer, Fall) Prereq: CHBH 6930 or concurrent; Restrictions: Consent of instructor
Independent project in which student demonstrates public health competencies. Includes public presentation of project.

CHBH 6930 Master of Public Health Practicum **2.0 cr.**
(Spring, Summer, Fall) Prereq: CHBH 6100, PUBH 6600 or equivalent and successful completion of 18 credits including 3 additional core courses and consent of instructor.
Theory and skills applied in a public health setting. Students must complete a minimum of 150 practicum field hours incorporating core competencies.

CHBH 6990 Thesis **1.0 –6.0 cr.**
(Spring, Summer, Fall) Optional supervised research project for Master of Public Health candidates in Health Education. Content to be jointly determined by student and sponsoring professor.

HUMAN REHABILITATIVE SERVICES

HRSS 6100 Interpretation and Evaluation of Behavioral Research **3.0 cr.**
(Spring) Understanding of applications of appropriate statistical techniques and necessary skills for interpretation and evaluation of research in human services. Emphasizes basic concepts, design and utilization of behavioral research.

STATISTICS AND RESEARCH METHODS

SRMS 6000 Introduction to Graduate Research **3.0 cr.**
(Spring, Summer, Fall) Principles of research, design and analysis. Read and critique published research. Required of all first year graduate students except in those departments with substitutes. Taught every semester.

SRMS 6650 Data Analysis for Decision-Making **3.0 cr.**
(Fall) Prereq: CHBH 6120, BIOS 6601 or PBHC 5600
This course focuses on the data-based decision-making process including identification of problems that can be addressed with data; articulating appropriate project goals/objectives; selection; collection, and management of data; data analysis and visualization; report writing and presentation of findings to relevant stakeholders.