



MS, HEALTH OUTCOMES AND INFORMATICS (MSHOI)

FALL YEAR 1			SPRING YEAR 1		
Code	Course Name	Credits	Code	Course Name	Credits
HRI 610	Quantitative Regression Analysis	3	HRI 625	Health Systems	3
HRI 615	Health Outcomes	3	HRI 635	Statistical Programming	3
MAT 610	Statistical Inference and Modeling	3	HRI 645	Epidemiology	3
Total Credits		9	Total Credits		9
FALL YEAR 2			SPRING YEAR 2		
Code	Course Name	Credits	Code	Course Name	Credits
HRI 655	Health Economics	3	XXX	Elective	3
HRI 665	Health Informatics	3	XXX HRI 750	Elective (T) or Capstone (NT)	3
HRI 761	Thesis Research (T) or Elective (NT)	3	HRI 761 HRI 751	Thesis Research (T) or Industry Practicum (NT)	3
Total Credits		9	Total Credits		9

Year 1 - Fall

Quantitative Regression Analysis (HRI 610)

This course introduces students to multiple regression methods for analyzing data in economics and related disciplines. Extensions include regression with discrete random variables, instrumental variables regression, analysis of random experiments and quasi-experiments, and regression with time series data. Accordingly, the emphasis of the course is on empirical applications. (3 credits)

Health Outcomes (HRI 615)

This course will provide students with an introduction to the principles and techniques of pharmacoconomics and health outcomes evaluation, and to the methodologies used by decision makers and stakeholders to draft and implement health policy. It builds on the economic principles presented in health economics (US and Global Health Care Systems) to describe the major components of the current U.S. health care system. Building on that foundation, the course introduces the techniques used for evaluation of health care interventions. These methods provide the basis for measuring and assessing the economic and non-economic consequences of health care interventions, emphasizing drug therapy, and pharmaceutical services. Examples of some of the economic methods introduced include: cost of illness analysis, cost-minimization, cost-effectiveness analysis, cost-benefit analysis, and decision analysis. Non-economic measures discussed include general and disease specific quality-of-life (QOL) assessments and health status measurement. Students will demonstrate the ability to critique published studies which use pharmaco-economic or health outcomes techniques, assessing the quality of the research and drawing relevant conclusions. (3 credits)

Pre-Requisites: PAD 415

Statistical Inference and Modeling (MAT 610)

This course provides students with a basic knowledge of biostatistics. It includes methods of experimental design and data analysis used to make inference. Topics covered include confidence intervals, hypothesis testing, multivariable regression, generalized linear models, survival models and analysis of variance. The course will also include a component which introduces the students to statistical programming. (3 credits)

Year 1 - Spring

Health Systems (HRI 625)

This course presents a systematic comparative analysis of the evolution, administrative structure, finance, and provision of medical care in selected countries throughout the world. Equity/inequity and the current and looming effects of globalization will be explored. This course will expand your understanding of health and illness by looking at them as socio-cultural and socio-economic phenomena. Important differences rooted in culture, ethnicity, social, economic and political factors will be examined to encourage innovative "framing" of U.S. health public policies. This course presents and facilitates the development of an analysis of major health service delivery and management issues from an international perspective. Each country in the world possesses and implements a unique health service delivery system. While there may be many factors, components and issues in common, there are nonetheless many differences. It is important to learn about and analyze other country's health care systems, to learn how they treat similar issues and to discover innovations. Improvement often comes through change and innovations, and this study will not neglect the opportunity to learn from others, especially those middle and lower income countries implementing interesting and innovative reforms. By utilizing a comparable model of exploration, we will gain an understanding of the similarities and differences of industrial countries, third world countries and tribal programs in the US. (3 credits)

Statistical Programming (HRI 635)

This course teaches students how to use SAS, or other appropriate statistical software (i.e. R, Stata, etc.), for statistical programming. Since SAS is used extensively at universities, at Fortune 500 type businesses, in government, at research centers, and just about any other place where data are managed and analyzed, knowing how to use SAS is a useful skill for the job market. The class focuses on aspects of statistical programming with SAS. Students will learn the techniques of database management and data manipulation. Other SAS capabilities including the graphics package and the interactive data visualization package, PROC INSIGHT, will be discussed in addition to the basic techniques for one and two sample problems, analysis of variance, linear regression, and categorical data. (3 credits)

Epidemiology (HRI 645)

This course covers the principles and methods of epidemiologic investigation including describing the patterns of illness in populations and research designs for investigating the etiology of disease. The course introduces quantitative measures to determine risk, association and procedures for standardization of rates. It also reviews application of basic principles and methods in the design and conduct of epidemiologic studies. Topics include the development of research questions; overview of epidemiologic study designs; sampling, sample size, and selection bias; techniques for data collection, sources of secondary data, and the evaluation of measurement and information bias; confounding and effect modification; techniques for simple and stratified analyses; and an introduction to mathematical modeling in epidemiology. (3 credits)

Year 2 - Fall

Health Economics (HRI 655)

This course is designed to introduce students to the economics of health care, with an emphasis on individual (i.e. demand side) decisions. We will examine how to apply microeconomic tools to analyze health care issues. Topics to be covered include demand for health and health care, individual responses to incentives inherent in health insurance markets, labor market effects, and health capital and health behavior decisions. Additionally, methodological issues for policy evaluation including cost-effectiveness and cost benefit analysis and estimating policy effects will be examined. Discussions will cover theoretical foundations as well as empirical methods and findings. (3 credits)

Health Informatics (HRI 665)

Health Informatics will introduce students to an interrelated set of theories, issues, technologies and methods related to the desire to improve health care through information technology. Different perspectives on the topic will be presented, with a particular emphasis on human factors and organizational learning. Students will gain practical experience in developing small health-related web applications. This will assist them in understanding the practical difficulties involved in improving systems through technology. In addition to a set of core health informatics topics, students will be given a set of optional topics from which they will choose one to research in depth. (3 credits)

Thesis Research (HRI 761)

Students will pursue a thesis project in a health outcomes research area selected to appropriately match their chosen career goals. In conjunction with the thesis advisor, students will perform an in-depth literature search and develop a testable hypothesis. The student and mentor then will work together to define a series of experiments that can be conducted to test the hypothesis. The student will learn the necessary techniques, conduct the experiments and analyze the data under the guidance of the mentor. Thesis work is compiled in a dissertation and presented as part of the thesis defense. (1-6 credits)

Year 2 - Spring

Capstone (HRI 750)

The capstone project is an integrative activity with a variety of final products based on the degree program and type of project undertaken. It is an opportunity for a student to gain additional training in one or more areas of health outcomes and informatics. The scope of the projects will vary based on the industry placement or investigators involved and may include but not limited to the examination of the primary literature on the subject, organizing and modeling data, performing health outcomes and informatics analysis, and providing recommendations. The common elements for each project is the production of a high quality project (research project or exhaustive case studies), the requirement for oral presentation of the final project and review by the corporate and faculty supervisor. (3 credits)

Industry Practicum (HRI 751)

The industry practicum is part of a capstone experience for students in ACPHS' master's degree program in Health Outcomes and Informatics. The practicum offers an educational opportunity for students to work for corporate clients doing real-time work, under the guidance of faculty, to analyze problems, negotiate requirements and scope, and solution development. The experience integrates all of a student's previous coursework. The capstone project is an integrative activity with a variety of final products based on the type of project undertaken. It is an opportunity for a student to gain additional training in one or more areas of health outcomes and informatics. (3 credits)