

School of Public Health and Tropical Medicine

Course Descriptions:

Undergraduate Required Courses in Public Health

SPHU101 Epidemics, Revolutions, and Response: The Historical Development of Public Health (3)

Students are introduced to the concepts and practice of public health in the U.S. and internationally by tracing its historical evolution. Classic public health problems and their resolution will be discussed in the context of the broader contemporary social environment. The latter part of the course is focused on public health practice in both the U.S. and developing countries, with a consideration of the structure, function, and financing of public health organizations. The many different roles for public health professionals in these organizations also are described.

SPHU 102 The Cell, The Individual, and The Community (3)

This course provides a foundation of knowledge about the human body in health and disease. It gives an overview of important concepts on the biological mechanisms of disease at the cellular, individual, and population/community levels. The course will focus on a natural progression in the development of health and disease, moving from a discussion of the cell, to the individual, and finally, to specific infectious or chronic disease states and processes. The role of the community in public health will be emphasized. This course is designed to provide a good foundation in the mechanisms of health and disease. Furthermore, each lecture will offer insights into current public health topics and research trends. Each lecture will address the following: 1) specific mechanisms of health and disease; 2) topics of special public health importance, and 3) a scientific update on research in the news.

SPHU 201 Disease Ecology and Public Health Concepts (3)

The course introduces students to the strategies employed by public health professionals to maintain and enhance the health of the population. Humans will be considered as part of the ecologic systems that influence the patterns and mechanisms of health and disease. Students will come to understand the basic concepts and language of public health science and practice. The course will review the distribution of public health problems and identify

important biologic, social and environmental determinants of disease. Examples of interventions designed to solve public health problems will be drawn for both national and international experience.

SPHU 202 Genetics and Human Health (4)

Students examine the past, present, and future relationships of public health and genetics. Genetics and public health have a long tradition of interaction, and the recent advances in genetics will have a dramatic impact on public health in the future. Topics covered in this course include the classical and molecular genetics of humans, human gene structure and function, the genetic basis of disease, mutagenesis, polymorphisms, epigenetics, human and pathogen bioinformatics, genetically modified organisms, gene therapy, and the ethical, legal, and social implications of human genetics and public health. The laboratory section of this course is split among “wet and dry” projects that complement and build upon the lecture themes. Laboratory projects provide students with the basic skill sets needed to integrate the disciplines of human genetics and public health.

SPHU 301 Public Health Systems Design and Decision Analysis (3)

This course develops conceptual and methodological skills for the design and implementation of public health policy. A solid grounding in systems theory will complement the use of practical management tools such as strategic planning, cost effectiveness analysis and decision analysis. Students will apply these concepts and tools within the context of current international and domestic policy frameworks in the field of public health.

SPHU 302 Knowledge and Information in the Practice of Public Health (3)

This course provides an overview of how data, information and knowledge are acquired and applied to public health problems. The philosophy of scientific inquiry and systems approaches to problem solving are covered. The course describes the methods by which data are collected, analyzed and applied to public health planning, as well as the measures and statistical tools necessary to assess the importance of public health problems. Students learn to understand and evaluate scientific publications on public health topics.

SPHU 304 / ENHS 603 Survey of Environmental Health Sciences (3)

Major environmental health problems, including water quality, wastewater, occupational health, trace elements in the environment, municipal and hazardous waste, food protection, vector control, and air quality are discussed.

SPHU 306 / HSMG 603 Principles of Health Systems Admin. and Mngt. (3)

Concepts and principles of management as they are applied in the functions of planning, organizing, staffing, leading, controlling, and evaluating in health services organizations. Includes study of managerial roles, styles, activities, and decision-making, as well as the relationship between management and organizational effectiveness. This course is most useful to students intending to work in the United States.

SPHU 401 Foundations and Formulation of Public Health Policy (3)

Students will be introduced to the nature of health policy and the process by which it is developed. Various approaches to health policy are defined and their rationale considered. The politics of the development of health policy in democratic societies are discussed from both national and international perspectives. The ethics of public health policy are addressed. The course includes modern case studies of important public health issues (e.g., AIDS, smoking prevention, emerging infections such as West Nile Virus) to illustrate the development and application of policy to promote the public health.

SPHU 402 / SPHU 603 Social and Behavioral Aspects of Global Health (3)

An overview of the contribution of the social and behavioral sciences to health behavior. The course includes examples from the intervention levels of health promotion, health protection, and disease prevention.

SPHU 403 / BIOS 603 Introductory Biostatistics (3)

Introduction to statistical methodology in the health field. Topics include presentation of data (graphs and tables), descriptive statistics, concepts of probability, estimation of parameters, hypothesis testing, simple linear regression, correlation, and the analysis of attribute data. It is recommended for students with any mathematical or statistical background and those needing a firm foundation in statistical methods either for their careers or preparation for further quantitative courses.

SPHU 405 / EPID 603 Epidemiologic Methods (3)

The course prepares students to function effectively as mid-level epidemiologists in public health agencies or other settings. The knowledge base and skills that are the focus of this course are fundamental to the scope of work expected of master's degree graduates in epidemiology. The course focuses on epidemiologic approaches to activities that are a routine part of public health practice.

SPHU 406 Senior Seminar in Public Health (0)

Students review a single public health topic, or category of public health topics, in depth. The topics change from year to year and may include current public health concerns, such as bioterrorism, AIDS, obesity, or breast cancer. Students research aspects of the selected topic and discuss the social and biologic origins of the health problem, possible approaches to prevention as well as the means by which such approaches would be implemented and evaluated.

OR

SPHU 408 Internship (0)

This 180 contact hours (minimum) field practicum is designed for students to synthesize and integrate knowledge and skills acquired through coursework and other learning experiences and to apply theory and principles in an experience that approximates an aspect of professional practice.

Professional Communications (3)

Required course to be selected from uptown offerings based on public health major.

**ADVANCED CURRICULUM REQUIRED COURSES
(EXISTING CORE COURSES IN THE TU-SPHTM)**

BIOS 603 Introductory Biostatistics (3)

Introduction to statistical methodology in the health field. Topics include presentation of data (graphs and tables), descriptive statistics, concepts of probability, estimation of parameters, hypothesis testing, simple linear regression, correlation, and the analysis of attribute data. It is recommended for students with any mathematics or statistics background and those needing a firm foundation in statistical methods either for their careers or in preparation for further quantitative courses.

EPID 603 Epidemiologic Methods I (3)

The purpose of this course is to prepare students to function effectively as mid-level epidemiologists in public health agencies

or other settings. The knowledge base and skills that are the focus of this course are fundamental to the scope of work expected of master's degree graduates in epidemiology. The course focuses on epidemiologic approaches to activities that are a routine part of public health practice.

ENHS 603 Survey of Environmental Health (3)

Major environmental health problems, including water quality, wastewater, occupational health, trace elements in the environment, municipal and hazardous waste, food protection, vector control, and air quality are discussed.

SPHU 603 Social and Behavioral Aspects of Global Health (3)

An overview of the contribution of the social and behavioral sciences to health. The course includes examples from the intervention levels of health promotion, health protection, and disease prevention.

HSMG 603 Principles of Health Systems Administration and Management (3)

Non-MHA students only

Concepts and principles of management as they are applied in the functions of planning, organizing, staffing, leading, controlling, and evaluating in health services organizations. Includes study of managerial roles, styles, activities, and decision-making, as well as the relationship between management and organizational effectiveness. This course is most useful to students intending to work in the United States.

MAJOR CONCENTRATION COURSES

Environmental Health Sciences

SPHU 421 Health and Environmental Risk Assessment (3)

The course covers the principles of human health and ecological risk assessment. The National Academy of Sciences model framework for risk assessment (hazard identification, dose-response assessment, exposure analysis, and risk characterization) is used to explain environmental risks of long-term exposure of humans and wildlife to air pollution and chemicals in food and drinking water. The interaction of scientific methods with focus on toxicology and regulatory requirements will be reviewed. Case studies focus on current environmental pollution issues such as exposure to lead paint, mercury in fish, arsenic from smelters and petrochemical industrial emissions. Specific topics to be covered in

detail include: health and ecological effects toxicology and environmental epidemiology; qualitative and quantitative risk assessment methods; cancer risk models; regulatory toxicology; risk communication; reproductive risk assessment; endocrine disruption; different approaches to risk assessment by federal, state and international agencies; political and economic aspects of risk management; information resources, and field trips to state regulatory agencies.

SPHU 422 Food Safety and Related Sanitary Codes (3)

This course addresses the complex food safety issues and deals with the recognition of their components. Diseases transmitted by contaminated food and methods of their control are discussed. The course also familiarizes students with the Sanitary Code and focuses on the section that deals with Eating and Drinking Establishments. Louisiana Sanitary Code will be used as a reference for this course.

SPHU 423 Environmental Health in the Workplace and Occupational Environment (3)

This course covers the fundamentals of industrial hygiene, safety and occupational health. Topics include the recognition, evaluation, and control of occupational stressors arising from chemical, physical and biological agents. The important diseases of the occupations reviewed from the standpoint of etiology and control. The role, duties and focus members of the occupational health team are delineated including those of the industrial hygienist, safety professional, industrial nurse, and occupational physician.

SPHU 424 Introduction to Environmental Toxicology (3)

Prerequisites: biology and general chemistry.

This course will introduce students to the field of toxicology as it relates to the environmental health sciences. Topics covered include: absorption, distribution, metabolism and elimination of toxicants, dose response relationships, cellular and molecular targets of toxicants, basic organ system toxicology and the toxicology of selected environmental substances.

SPHU 425 Water and Sustainable Resource Management (3)

This introductory undergraduate course covers the basic impacts of water quality management, the fundamentals of water and wastewater treatment relevant to pathogens and toxics removal/destruction and review of toxic and hazardous management. In the area of water quality management, the course

covers stream, lake and estuarine management including criteria and standards regulation development, non-point source pollutants and other relevant issues. The water and waste treatment elucidates the pertinent physical, chemical and biological processes for inactivation of pathogens and removal of toxics. The toxic and hazardous portion of the course discusses toxic/hazardous waste characterization, waste minimization, waste audits and the history of the hazardous waste regulations.

SPHU 426 Biological and Chemical Terrorism Prevention (3)

Integration of basic principles of public health and biological and chemical terrorism concerns. Basic environmental health aspects of biological, chemical and nuclear agents are presented along with interventions to reduce potential morbidity and mortality from terrorist activities. Psychological and economic aspects of terrorist threats and events are considered. Terrorism involving contamination of air, food, and drinking water is discussed in detail along with prevention and decontamination procedures. Biological agents covered in depth include anthrax, smallpox, shigella, salmonella, cryptosporidium, cholera, emerging diseases and other Centers for Diseases Control priority agents. Chemical agents include chemical warfare agents (nerve, blood and blister), metals, volatiles, pulmonary agents, pesticides, corrosive acids, explosives, radionuclides and other CDC priority agents. Community-driven, institutional health and safety, federal, and state antiterrorism programs are discussed. Field trips to state and emergency response agencies dealing with terrorism prevention and response are included.

SPHU 427 Ethics and Environmental Health (3)

This course focuses on exploring the relationships between ethical issues and environmental health. It does so by encouraging students to develop practical and analytical skills to advocate policy changes to strengthen the understanding between the environment and health promotion practices. Topics including environmental equity, environmental racism and relationships between the location of environmental health hazards and socioeconomic makeup of the surrounding communities are discussed. In addition to lectures, it is anticipated that students will engage in plenary and small discussions.

Global and Community Health

SPHU 311 Public Health Program Planning and Evaluation (3)

Students begin to integrate their understanding of public health science in this applied problem-solving course that brings together the elements of program development and rigorous evaluation. The course develops the concepts of problem assessment, strategic approaches to program planning, and evaluation of public health programs.

SPHU 312 From Biology to Policy: Issues and Strategies in Public Health (3)

Focusing on a small number of specific health problems of global public health importance, this course traces the relationships among the biologic, sociologic, economic, and political factors involved in the identification, prevention and treatment of the health problem. The course helps students understand the dynamic tension that exists between various stakeholders involved in the disease intervention process and how these tensions play out in the public and global policy arena. The course will be transdisciplinary, emphasizing the connections between the biologic nature of disease and the social, economic and political context in which policy for dealing with disease is developed. Examples of diseases that may be addressed are AIDS, tuberculosis, heart disease, and breast cancer.

SPHU 420 Implementing-Evidence Based Public Health (3)

This course introduces the student to the scientific, epidemiological, organizational and management skills needed in designing and obtaining funding for an evidence-based public health intervention within an organizational or community setting. Students become familiar with the role and operation of not-for-profit organizations, foundations, national and international government agencies, and the local community in this process. Students learn to access publicly available and electronic information provided by these agencies and organizations. The course illustrates how evidence-based public health is used by funding agencies in developing and awarding grants and by public health providers and community contractors in applying for and receiving them. Emphasis is placed on how evidence-based public health is used in writing grant proposals and students have an opportunity to write a grant proposal as part of the course.

Health Informatics

SPHU 330 Information Management (3)

This course, an introduction to information management, covers the history of concepts in data, information, knowledge and wisdom, and elements of design of databases, data-entry techniques and queries of databases. Application of computers in medicine, biology and public health will include: medical records; issues of coding, storage and retrieval of medical data; systems of classification and medical nomenclature; use of census data, vital and survey data; database management systems; preparation of presentation graphics, tables and maps; imaging; computer assisted decision support; monitoring devices; evaluation of systems; standards and data security.

SPHU 430 Technology in Education and Communication (3)

This course introduces the design and development of websites for educational material available through the Internet information retrieval; covers the preparation of research protocols, oral presentations and written reports, issues in distance learning, fundamentals of distance learning; and telemedicine.

SPHU 431 Topics in Bioinformatics (3)

This course introduces application of computing, mathematics and engineering to selected fields: gene sequencing in the identification of disease, imaging, diagnostic decision making, artificial intelligence, proteomics, geographic information systems, and data mining.

The school reserves the right to change its rules, regulations, courses, and requirements and to make all such changes applicable to all students, whether new or continuing, when in its sole judgment such changes are deemed necessary.