

# HEALTH SCIENCE (HS)

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## HS 311. Introduction to Public Health. (4 Credits)

This course provides an introduction to the field of public health, focused on case studies of contemporary public health issues in the U.S. and globally. Students will be exposed to public health in historical perspective and to current career paths in the field, will gain an understanding of public health theory and public health's mandate to prevent disease in populations, and will learn to critically analyze health issues from a public health and interdisciplinary perspective. Emphasis will be given to social, cultural, and structural determinants of health, to health promotion and disease prevention interventions, and to the relationship of public health to God's promise of shalom.

## HS 312. Pandemics: Ancient and Modern. (2 Credits)

This course presents a historical perspective on great pandemics, from the Plague and other pre-modern pandemics, to HIV and Covid-19 in late 20th and early 21st century. Particular emphasis will be given to what the pandemic revealed about the world, how the pandemic shaped the world, and how Christians and the church responded to the pandemic.

## HS 362. Orthopedic & Athletic Injury. (2 Credits)

A study of the mechanism, treatment, rehabilitation, and prevention of musculoskeletal injury. The course begins with the study of the injury process from a physiological and biomechanical perspective. The course then progresses into the study of specific injuries to the various areas of the body. The course concludes with the study of various treatment modalities utilized in the health care arena. Departmental adjunct faculty and health professionals from the community serve to expand the course content within their area of expertise. Pre or Corequisite: BIOL 331 and BIOL 331L, BIOL 332 and BIOL 332L. Additional course fee required: \$10.

## HS 368. Concepts in Nutrition. (4 Credits)

This course includes the theory and techniques of nutrition, dieting, and proper weight control. Digestion and absorption will be presented at the biochemical and applied physiological levels. Experimentally based research projects and case studies will be accomplished in small groups.

## HS 371. Clinical Kinesiology. (4 Credits)

This course will study the biomechanical forces involved in human movement. Applications will include the study of normal human movement, abnormal/pathological movement (e.g. abnormal gait analysis, rehabilitation aspects of movement), as well as sport and exercise biomechanics. Attention will be given to both the quantitative and qualitative analysis of movement. Prerequisite: BIOL 331, BIOL 331L, BIOL 332, BIOL 332L. Additional course fee required: \$25.

## HS 373. Behavioral Medicine. (2 Credits)

This course examines influences on health behavior, from the individual level to family, community, societal, and structural level factors. Students will gain in-depth understanding of key concepts related to the behavioral, social, cultural, and spiritual context of health behaviors and how this context applies to specific health issues and behaviors. Students will gain conceptual tools to understand and analyze health behaviors within this context, including tools from medical anthropology, psychology, and health behavior change and communication. This is a reading-intensive seminar which emphasizes critical thinking, discussion, and application of concepts to real-world challenges.

## HS 374. Social Determinants of Health. (2 Credits)

This course examines the influence of social determinants of health (SDOH) on health behaviors and outcomes, and particularly the application of an SDOH framework to medicine, public health, and other allied health professions. Social determinants of health are defined as the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. An SDOH framework allows for consideration of social and structural determinants of health disparities and inequities, including racism, poverty, and other forms of systematic bias and injustice. Students will gain in-depth understanding of an SDOH framework and will use this framework to recognize and analyze social and structural determinants of specific health issues and behaviors. This is a reading-intensive seminar which emphasizes critical thinking, discussion, and application of concepts to real-world challenges.

## HS 381. Concepts in Epidemiology. (4 Credits)

An introductory course of the basic science of disease prevention. Overview of epidemiologic methods and research designs to explore the variation of disease occurrence among individuals and populations and how that variation is studied to understand the causes of disease. Discussion of the biologic, behavioral, social and environmental determinants of health and disease. Description of how epidemiologic findings are applied to health maintenance and disease prevention.

## HS 382. Biostatistics. (4 Credits)

The purpose of this course is to train students to become intimately familiar with the basics of research design and statistical modeling techniques commonly used in the health sciences. Knowledge will be gained as students learn how to go from hypothesis generation, to appropriate research design, to the implementation of a statistical model, to the interpretation of results.

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## HS 391. Community-Based Research in Urban Public Health. (4 Credits)

Theory and practice of public health program planning and evaluation in partnership with community public health organizations in urban Chicago. Students will integrate principles of community building and organizing to address community-identified health issues in the context of social change. Emphasis will be placed upon the development of faith-based cultural humility for the recognition and empowerment of existing healthy community assets for the improvement of urban health and quality of life. Quantitative and qualitative research methods will be utilized and integrated throughout all phases of health planning and program evaluation. \$50 course fee. Prerequisite: HS 381. Additional course fee required: \$50.

## HS 392. Public Health Research Theory and Methods. (4 Credits)

This course is designed to introduce students to the perspectives, methods, and techniques of qualitative and quantitative public health research. Students will gain an understanding of the theoretical foundations of human subjects research, methods of data collection and analysis, research ethics and ethics board approval, study design and participant recruitment, and presentation of research findings. Each student will engage in a research project (writing a research proposal, collecting data, and/or analyzing data), with the goal of applying course content and developing practical skills in either qualitative or quantitative research methods. Pre or Corequisite: HS 381 and HS 382.

## HS 451. Advanced Human Anatomy. (2 Credits)

This course covers advanced concepts of human cadaver anatomy. A thorough general dissection of the entire body with various in-depth dissections throughout the course will be the focus. This course is intended to serve students interested in the health professions. Prerequisite: BIOL 331 and BIOL 331L, BIOL 332 and BIOL 332L.

**HS 452. Applied Physiology. (4 Credits)**

This course will present the applied physiology of the following conditions: heart disease, obesity, type-2 diabetes mellitus, lower limb amputations, pregnancy, and aging and the role of prescribed exercise in the management and rehabilitation of these conditions. The physiological and biochemical adjustments and adaptations to acute and chronic exercise will be presented. Experimentally based research projects will be accomplished in small groups. Prerequisite: BIOL 331 and BIOL 331L, BIOL 332 and BIOL 332L. Additional course fee required: \$75.

**HS 494. Integrative Seminar. (2 Credits)**

This course is designed to provide an integrative conclusion to the major by reflecting on how a Christian liberal arts education has shaped students' knowledge and character, to connect the discipline of Applied Health Science within the broader context of liberal arts and the Christian faith, and to clarify/reaffirm vocational calling.

**General Education:** SHAR

**HS 495. Problems in Health Science. (1 to 4 Credits)**

Special projects and independent research study. These projects must offer a unique learning experience for the student and will usually be an experimentally based research project with the purpose of developing critical thinking and with the intent of being published.

**HS 496. Internship. (4 to 8 Credits)**

Practical experience under supervision in an approved program.  
Prerequisite: Junior or senior standing as a Health Science major.