

# HEALTHCARE SCIENCES (HCS)

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**HCS 200. Electrophysiology. 3 Credit Hours.**

This course is a survey of the basic principles of Public Health.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 202. Introductory Statistics in Health Care. 3 Credit Hours.**

Application of descriptive and inferential statistics. Principles and methods of summarizing data including tables, graphs, percentile ranks, central tendency, variability, normal distribution. Basic concepts of probability, hypothesis testing, and analysis of variance. Examples and problems from nursing, health sciences and public health.

Corequisite: MTH 101. Or Requisite: ALEKS > or = 55 or SAT Score > or = 630 or ACT > or = 28.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall & Spring.

**HCS 207. Introduction to Pharmacology. 3 Credit Hours.**

Introduction to the basic principles of therapeutic pharmacology. Special consideration of cultural beliefs and folk medicine included. Emphasis is on the understanding of the different classes of drugs and their application in various health care settings.

Prerequisites: BIL 150 and CHM 103 or 111 or 121 and HCS 212/215.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 212. Human Anatomy. 3 Credit Hours.**

Emphasis is on the understanding of the anatomical compartments of the human body and the ability to identify the bony skeleton, musculatures, blood vessels and internal organs of each compartment.

Prerequisite: BIL 150.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall, Spring, & Summer.

**HCS 213. Human Anatomy Laboratory. 1 Credit Hour.**

Laboratory to accompany HCS 212.

Pre or Corequisite: HCS 212.

**Components:** LAB.

**Grading:** GRD.

**Typically Offered:** Fall, Spring, & Summer.

**HCS 215. Principles of Systemic Physiology. 3 Credit Hours.**

Emphasis is on the understanding of the Physiology and selected Pathophysiology of various organs and systems.

Prerequisite: HCS 212. And Pre or Corequisite: CHM 111 or CHM 121 or CHM 103 and CHM 113 or CHM 105.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall, Spring, & Summer.

**HCS 216. Principles of Systemic Physiology Laboratory. 1 Credit Hour.**

Laboratory to accompany HCS 215

Pre or Corequisite: HCS 215.

**Components:** LAB.

**Grading:** GRD.

**Typically Offered:** Fall, Spring, & Summer.

**HCS 217. Medical Terminology. 1 Credit Hour.**

This course will assist the student in understanding the principles of medical word building in order to develop the extensive medical vocabulary used in health care professions. Students receive a thorough grounding in basic medical terminology through the study of root words, prefixes and suffixes. The course emphasizes correct pronunciation, spelling and use of medical terms.

Prerequisite: BIL 150.

**Components:** CLN.

**Grading:** GRD.

**Typically Offered:** Fall, Spring, & Summer.

**HCS 352. Biological Principles of Public Health. 3 Credit Hours.**

This course examines the biological basis and pathogenesis of diseases from a public health perspective and describes the impact on populations. This course also presents the basic scientific and biomedical concepts of modern public health problems and explores in depth mechanisms and models of the major categories of disease. The biologic principles presented in this course are foundations to developing and implementing public health disease prevention, control, or management programs.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall.

**HCS 355. Global Nutrition. 3 Credit Hours.**

This course examines nutrition related public health issues in the global setting. Nutrition related morbidity and mortality, etiologic factors, and population-focused strategies to address these issues are covered. Food relief and nutrition policies and programs at the local, national and international levels are examined. Current scientific research in international nutrition is reviewed from an epidemiological perspective.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 402. Global Health Disparities Research. 3 Credit Hours.**

This is a 4 week intensive educational experience that prepares students to be successful conducting supervised health disparities research as part of the MHIRT program at a foreign institution, disseminating findings, and applying to graduate school. The training program is broken into a preparation phase (3 weeks prior to leaving to their host country), and a dissemination phase (1 week after they return). Students will be working as a research assistant at a foreign site for eight weeks in between the preparation and dissemination phases of this training program. Students will learn about the influence of culture and healthcare policy on health and health disparities, research design, statistics, communicating research findings and careers in health disparities research.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 461. Health Disparities Research Practicum. 1-4 Credit Hours.**

This course is designed to provide opportunities for students across all levels of higher education to participate in health disparities research. Students will be mentored by a health disparities researcher with an active research project. Objectives will be established by the research mentor and the student according to educational level, interests and opportunities. Students will be incorporated into the research team and expected to attend project meetings. They will also be expected to participate in scholarly work that could contribute to the success of the project. Examples of scholarly work include co-authoring research papers and presentations, developing recruitment materials, assisting in compiling/developing data collection measures, or any other product deemed appropriate by the mentor.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 465. Public Health Statistics and Data Management. 3 Credit Hours.**

This course is designed to give students an opportunity to apply basic principles of statistics and data management in public health. Students will learn to use statistical techniques to answer questions relating to the morbidity and mortality of health conditions and the efficacy and effectiveness of public health interventions.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall.

**HCS 487. Global Health Practicum. 3 Credit Hours.**

Collaborative clinical venture between UM/SON and an International School of Nursing. Students will exchange supervised western clinical experiences, knowledge and skills for the care of clients and families in specialty areas, including MedSurg, Surgery, ICU and/or Emergency nursing units. Students will apply and synthesize basic science knowledge and skills that foster ethical, legal and culturally specific health care.

**Components:** PRA.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 499. Selected Topics. 0-6 Credit Hours.**

A selected topics course is offered as needed in order to present emerging issues or specialized topics that are not part of the regular curriculum.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Fall & Spring.

**HCS 600. Public Health Information. 3 Credit Hours.**

This course will provide an overview of important health issues as they relate to public health and epidemiology. Principles and methods of public health surveillance and epidemiology will also be presented. Through hands-on assignments students will learn how patient databases and computer information systems and technologies may be utilized to address important issues in public health.

**Components:** DIL.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 601. Legal, Ethical and Regulatory Issues in Health Informatics. 3 Credit Hours.**

This course will address the legal, social, ethical and regulatory issues that impact the use health information systems and computerized technology for health care delivery. In addition to an in-depth examination of the legal and regulatory standards that govern health informatics, emphasis will be placed on ethical decision-making and the importance of mitigating liability through the application of various risk-management strategies. Case studies will be used extensively to afford students an opportunity to apply the information they have learned in the course.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 603. Healthcare Databases: Design, Development and Clinical Application. 3 Credit Hours.**

This course focuses database systems, development, design, and implementation within the context of health care. Special emphasis is placed on the role of database applications for continuous quality improvement and regulatory compliance. Students will design a relational database applicable to informatics leadership responsibilities.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 604. System Life Cycle/Project Management. 3 Credit Hours.**

This course covers the identification and development of information technology plans for projects supporting the health care organization's business objectives and all activities required in the initiating, planning, executing, controlling, and closing phases of the project's life cycle. This course is intended to provide the body of knowledge and best practices necessary for a new Consultant, Business Analyst or Project Manager to successfully perform his/her responsibilities on an IT enterprise project.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 605. Health Information Exchange. 3 Credit Hours.**

This course is designed to introduce the informatics professional to the basic principles of Health Information Exchange. The focus will be on interoperability between ambulatory clinics, acute care facilities and long-term care; electronic health records; electronic prescribing systems and consumer health care informatics. Special emphasis is placed on the role of HIE in the American Recovery and Reinvestment Act.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 608. Information Security. 3 Credit Hours.**

This course will emphasize the importance of information security and discuss strategies and legal requirements for restricting data access and ensuring privacy. Such strategies will include discussion of industry standards for physical security, as well as hardware and software safeguards. The challenges that new and emerging technologies will present with regards to data integrity and security will also be emphasized.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 609. Research Methods and Applications for Health Informatics. 3 Credit Hours.**

In this course students will be introduced to basic research methodology and design for health sciences and medicine as well as role informatics can play in research related to medicine, public health and biomedical sciences. Students will also be exposed to bioinformatics, a discipline of informatics concerned with the acquisition, storage, and application of use of information for biomedical research. The course will include research seminars given by guest speakers who are conducting research using health informatics.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 610. Elective in Health Informatics. 3 Credit Hours.**

The elective course is designed to expose students to various aspects of health informatics and its many applications.

**Components:** DIL.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 611. Capstone in Health Informatics. 3 Credit Hours.**

In the capstone course students will assimilate and apply the knowledge and skills they have acquired from their course work in the program. Students will complete a non-thesis capstone project that requires them to critically analyze and solve a problem they might realistically encounter in health informatics using their skills in data acquisition, project management, data presentation, and risk management. Students will also develop and submit an electronic portfolio that contains key examples of work they have generated during their time in the program along with a self-reflection of that work.

**Components:** DIL.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 658. Structure and Processes in Health Care Organization and Health Care Policy. 3 Credit Hours.**

An exploration of health care organizations and health care policy, and how change is affected in both. Health care policy and planning to address health care disparities at the local, state, and federal levels will be explored. Organizational diagnosis, organizational change, and ethical dimension of public policy formulations and implementation will be highlighted.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.

**HCS 685. Introduction to Health Informatics. 3 Credit Hours.**

The course develops an understanding of the role of information systems and technology within a healthcare organization. It examines the business and technical issues associated with the selection, deployment and use of health informatics, both in the clinical and back office areas. Health informatics, for the purpose of the course, is defined as the convergence of information technology, information management, and health care, at various levels, ranging from simple data gathering, to the design and implementation of new health care information systems.

**Components:** LEC.

**Grading:** GRD.

**Typically Offered:** Offered by Announcement Only.