

# MEDICAL SCIENCE (MSCI)

## **MSCI 500 Foundations of Biomedical Sciences 3 Credit Hour(s)**

This course employs the exploration of the molecular, genetic, biochemical and cellular basis of human oncogenesis, tumor metastasis, cancer detection and therapeutic advances as a comprehensive background for understanding and engaging the field of biomedicine. It provides a solid foundation in the basic biomedical principles that serve as the framework for advancing medical science including genetics, cellular anatomy, metabolism and cell signaling.

**Offered:** Online

## **MSCI 505 Principle of Medical Genetics 3 Credit Hour(s)**

**Online Prerequisite:** MSCI 510 or BIOM 523 and MSCI 512 or BIOM 524 and MSCI 520 or BIOM 525 and MSCI 522 or BIOM 526

An introductory study of human genetic materials that emphasizes an understanding of their structures, functions, and transmission. It encompasses a range of concepts from the propagation of life to the molecular basis of human diseases.

**Offered:** Online

## **MSCI 510 Foundations of Medical Anatomy I 4 Credit Hour(s)**

This is a course that covers all aspects of human anatomy through lectures. Students will be taught the fundamentals of human anatomy required for various healthcare careers. Relevant applications to various clinical imaging techniques including x-ray radiography and invasive clinical procedures such as lumbar puncture are discussed from the physician's perspective. This course precedes MSCI 512 which includes the use of human cadavers.

**Offered:** Online

## **MSCI 512 Foundations of Medical Anatomy II 2 Credit Hour(s)**

**Online Prerequisite:** MSCI 510 or BIOM 523

An intensive introductory course that explores the structures and functions of the human body using a human cadaveric dissections. A regional approach with focus on the osteology, musculature, vasculature, and innervation of each region along with an understanding of the interrelationship among organ systems. This course follows MSCI 510.

**Offered:** Online

## **MSCI 520 Principles of Physiology I 4 Credit Hour(s)**

This course introduces the fundamental principles of physiological functions, the coordination of physiological processes responsible for the maintenance of a stable internal environment and evaluating the roles of different organ systems in maintaining homeostasis. This course will employ the review of disease conditions to highlight the significance of homeostasis.

**Offered:** Online

## **MSCI 522 Principles of Physiology II 1 Credit Hour(s)**

**Online Prerequisite:** MSCI 520 or BIOM 525

This laboratory intensive course uses a problem-based learning approach in helping students develop critical thinking skills for scientific inquiry in evaluating organ systems physiological functions, homeostasis and factors that can alter them.

**Offered:** Online

## **MSCI 530 Introduction to Human Metabolism and Disease 4 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

An introductory study of homeostasis from the perspective of cellular metabolic pathways and the enzyme that catalyze their reactions. A huge emphasis will be on how deficiencies of enzymes/co-enzymes result in inborn and acquired errors of metabolism.

**Offered:** Online

## **MSCI 640 Ethics in Health Sciences 3 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

An introduction to the Hippocratic and Judeo-Christian foundations for health science decision making and practice. The course will place emphasis on the inherent dignity and worth of humanity as a whole, as well as the individual patient.

**Offered:** Online

## **MSCI 650 Fundamentals of Neuroscience 3 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

An introductory study of the basic principles of neuroanatomy, neurophysiology, and neurochemistry designed to help students gain a good understanding of the human brain and spinal cord. Topics will include learning and memory, emotions, and neurological and neuropsychiatric disorders.

**Offered:** Online

## **MSCI 660 Principles of Cellular Biology 4 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

An introductory study on the structure, function and organization of the cell including cellular organelles, the cytoskeleton and extracellular matrix, cell signaling, membrane transport, protein targeting, and cell division. Relevant disorders of altered structures and functions of the cell will be studied as well.

**Offered:** Online

## **MSCI 670 Principles of Immunobiology 3 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

An introductory review of the immune system of the human body, including the cells and molecules that play a major role in the immune response to disease. The course will include antigen presentation, cytokine networks, vaccines and vaccine development, immunodeficiency diseases, tumor immunity, tolerance, autoimmunity and contemporary topics in immunology.

**Offered:** Online

## **MSCI 680 Pathogens and Human Diseases 3 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

A comprehensive study of microorganisms that cause human disease and the basic principles of pathogenesis, including the molecular basis of infectious disease, how microorganisms establish infections, gain nutrients, cause damage to the host and disease, evade host defense mechanisms.

**Offered:** Online

**MSCI 690 Fundamentals of Human Pathology 3 Credit Hour(s)**

**Online Prerequisite:** (MSCI 510 or BIOM 523) and (MSCI 512 or BIOM 524) and (MSCI 520 or BIOM 525) and (MSCI 522 or BIOM 526)

This course reviews fundamental principles of pathology including: Cell Injury, Cell and Tissue Adaptation, Cell Death, Acute and Chronic Inflammation, Tissue Repair, Necrosis and Apoptosis. Various diagnostic testing and analysis though critical thinking skills in will be stressed in order to prepare students for various healthcare careers.

**Offered:** Online