

# FOUNDATIONAL SCIENCES

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## **FDSC 1101. Foundational Sciences I. (8 Credit Hours)**

This course provides a description of molecular function, cell biology and histological anatomy, providing the foundations for the basic medical sciences. In the Biochemistry/Genetics domain of the course, molecular structure, metabolic pathways, gene expression and human genetics will receive major emphasis. Case studies of metabolic and genetic disorders are presented to illustrate the implications of biochemistry, molecular biology, and genetic principles for human health. In the Cell/Tissue Biology domain, the course offers a comprehensive study of human cell biology, basic tissue types, and the histology of different tissues, organs, and organ systems. The relationships between typical (nonpathological) histology, gross anatomy, and function are emphasized. Examples of clinical relevance highlight the breakdown of normal microstructure and the resulting its impact on function. The Cell and Tissue Biology section of the course consists of regularly scheduled lectures and self-directed, online lab exercises using orientation videos, lab guides, and high-resolution digital micrographs. high-resolution digital micrographs, and collaborative learning exercises.

## **FDSC 1102. Foundational Sciences II. (6.5 Credit Hours)**

This course covers basic principles and clinical relevance of immune and microbiologic mechanisms with emphasis on fundamentals of host-pathogen interactions. Additionally, an introduction to the various subdisciplines of microbiology, with emphasis on facts and principles pertinent to the broad requirements for understanding infectious diseases. Basic principles of medical physiology from the molecular and cellular levels to the organ systems will be covered. Emphasis is placed on regulatory control mechanisms that are necessary to understand body homeostasis and pathophysiology. Lastly, a foundational knowledge in General Pathology will cover the essential nature, causes, and development of abnormal conditions, as well as the structural and functional changes that result from the pathogenesis of disease processes.

## **FDSC 1103. Foundational Sciences III. (7.5 Credit Hours)**

This course integrates anatomical, biochemical, molecular and cellular processes to describe the mechanisms that control homeostasis and physiological organ functions. The course also describes structural and functional changes in cell, tissue and organs as part of the pathophysiological changes and pathogenesis in disease states. Additionally, the course provides knowledge of the microorganisms involved in human infectious diseases and the host processes involved in the resistance to, and elimination of infectious diseases.