

MBS-Multidisciplinary Biomedical Science

MBS 601. Molecular and Cell Biology. 4 Hours.

This course will provide a broad but rigorous overview of molecular biology. Cell structure between prokaryotes and eukaryotes will be compared and contrasted. DNA structure/organization will be discussed with respect to replication and repair mechanisms. Mendelian, non-Mendelian and chromosomal bases of genetics will also be discussed. Transcription and translation will be discussed in detail, along with their respective regulatory mechanisms. Throughout this course there will be a focus on intracellular organelles that contribute to the generation and regulation of DNA, RNA and protein. Finally, when possible, relevance to human disease will be presented and discussed.

MBS 602. Biochemistry and Cell Biology. 4 Hours.

This course will cover the structure, function and metabolism of biological macromolecules including proteins, carbohydrates, lipids and nucleotides. A rigorous overview of pathways will be discussed that are important for the effective metabolism of macromolecules (e.g. glycolysis, citric acid cycle) and generation of energy for cells. The last part of this course will discuss membrane structure and function, and will provide an overview of eukaryotic cell signaling.

MBS 603. General Human Physiology. 4 Hours.

This course begins with the study of basic cell function, then proceeds to a rigorous overview of specific human organ systems.

MBS 695. Professional Development Colloquium for Non-Thesis Students. 1 Hour.

These variable topics will provide a rigorous overview of scientific reading, writing, and presenting skills, with a focus on career development. Students will complete in-class discussions and presentations related to health careers and will have at home writing assignments and peer review of other's work. When relevant to the discussion topic, responsible conduct of research (RCR) will be reviewed.

MBS 696. Special Topics. 0-3 Hours.

To be determined by the Program Director and prospective Course Directors.

MBS 697. Colloquium for MBS Plan I Thesis Students. 1-2 Hour.

This required colloquium course will have variable professional development topics depending on the section enrolled. The overall goal of this course is for students to improve their writing and oral presentation skills, and to effectively review others' work by asking questions and editing/reviewing documents. Best practices will be introduced at the beginning of each class, followed by students completing in-class presentations or at-home writing assignments and reviews. When possible, scientific integrity in research will be a focus of in-class discussions.

MBS 698. Non-Thesis Research. 0-6 Hours.

Students may perform independent study in a research laboratory setting. This work may contribute toward concentration credits subject to Program Director approval.

MBS 699. Thesis Research. 1-6 Hour.

Supervised independent research.

Prerequisites: GAC M