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**IBS** **Integrated Biomedical Sciences**

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**IBS 601 BIOMOLECULES AND METABOLISM. (3)**

An introductory graduate-level biochemistry course designed to provide a basic knowledge of molecular and biochemical principles necessary for advanced graduate study. Protein structure and function, enzyme catalysis, the generation and storage of metabolic energy, amino acid, nucleotide, and lipid metabolism and biological membranes and transport will be covered. Prereq: CHE 105, 107, 230 and 232; BIO 150 and 152; or equivalents. (Same as BCH 607.)

**IBS 602 BIOMOLECULES AND MOLECULAR BIOLOGY. (3)**

An introductory graduate-level biochemistry course focused on the cellular mechanisms that underlie the regulated expression of genes, including transcription and translation, as well as basic mechanisms of DNA replication/repair and recombination. Genetic engineering and other experimental approaches critical to molecular biology research will be reviewed. Prereq: CHE 105, 107, 230 and 232; BIO 150 and 152; or equivalents. (Same as BCH 608.)

**IBS 603 CELL BIOLOGY. (3)**

An introduction to cell biology and signaling focused on cell types and architecture, membrane structure, cytoskeletons, mitochondria, cellular mechanisms of development, cell division, cell cycle, apoptosis and prokaryotic cell biology and modulation by bacterial pathogens. Prereq: CHE 105, 107, 230 and 232; BIO 150, 152; or equivalents.

**IBS 604 CELL SIGNALING. (3)**

An introductory course on cell biology and signaling focused on inter- and intracellular communication, from the generation of signaling molecules to cellular responses, including transcriptional regulation. Examination of cellular and molecular techniques important to understanding key advances in cell signaling will be included. Prereq: CHE 105, 107, 230 and 232; BIO 150 and 152; or equivalents.

**IBS 605 EXPERIMENTAL GENETICS. (3)**

An introductory molecular genetics course designed to expose first-year graduate students to contemporary concepts and methods in genetics and genomic analysis. Model systems and classic papers will be presented as paradigms for important genetic principles. Prereq: CHE 105, 107, 230 and 232; BIO 150 and 152; or equivalents. (Same as MI 604.)

**IBS 606 INTEGRATED BIOMEDICAL SCIENCES. (4)**

Consideration of the function of the mammalian organism from a perspective ranging from the cellular/sub-cellular to the organ system and whole organ designed to allow students in the IBS curriculum to develop a truly integrative appreciation of biologic function. Prereq: IBS 601, 603 and 605.

**IBS 607 SEMINAR IN INTEGRATED BIOMEDICAL SCIENCES. (0)**

Weekly seminar devoted to the presentation and discussion of classic and new research. May be repeated to a maximum of four times; two semesters are required as part of the IBS curriculum. Prereq: Admission to IBS curriculum.

**IBS 609 RESEARCH IN INTEGRATED BIOMEDICAL SCIENCES. (1)**

Individualized laboratory and research experience under the supervision of a faculty member. May be repeated to a maximum of two credit hours. Two semesters required as part of IBS curriculum. Prereq: Admission to IBS curriculum and consent of instructor.