IBS 7015 Interdisciplinary Cell and Molecular Biology Cr. 6
The fundamental biochemistry, molecular biology, and function of eukaryotic cells. Includes study of the structure and purpose of the basic components of eukaryotic cells; how eukaryotic cells obtain and utilize energy, process information, and replicate or self-destruct; and examples of how specific cell types contribute to multicellular biological processes and systems in normal and disease states. Offered Fall.
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine; enrollment limited to students in a Doctor of Philosophy degree.

IBS 7030 Functional Genomics and Systems Biology Cr. 2
Exploration of several new technologies for determining gene function on a genome-wide scale and for integrating information into a systems-level view of biological processes. Offered Winter.
Prerequisite: IBS 7015 with a minimum grade of C or MGG 7010 with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine; enrollment limited to students in a Doctor of Philosophy degree.
Equivalent: MGG 7030

IBS 7050 Biomedical Neurobiology Cr. 2
Sensory, motor, and integration of nervous systems, including anatomic and cellular organization, systemic and cellular-molecular functions, and diseases. Offered Winter.
Prerequisites: IBS 7015 with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine; enrollment limited to students in a Doctor of Philosophy degree.

IBS 7090 Biomedical Immunology Cr. 2
Cellular-molecular and systemic functions, and diseases of the immune system. Offered Winter.
Prerequisites: IBS 7015 with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine; enrollment limited to students in a Doctor of Philosophy degree.

IBS 7100 Biomedical Neuropharmacology Cr. 2
General principles, including cellular and molecular basis of drug action with special emphasis on neuronal systems. Offered Winter.
Prerequisites: IBS 7015 with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate or Medical level students; enrollment limited to students in the School of Medicine.

IBS 7110 Introduction to the Business of Biotechnology Cr. 3
Translation of biomedical innovation from bench to bedside, with focus on interplay between healthcare needs, regulatory agencies, and commercialization pathways. Offered Winter.
Restriction(s): Enrollment is limited to Graduate level students.
Equivalent: BMS 7100

IBS 7115 Special Topics in Biotechnology Commercialization Cr. 1
Designed to provide practical experience in defining the relationships between academic discovery science and business development, with a focus on best practices for presenting basic research-commercial products to external, interested individuals. Offered Winter.
Restriction(s): Enrollment is limited to Graduate level students.
Equivalent: BMS 7115

IBS 7130 Systems Neuroscience: Structure and Function of the Nervous System Cr. 2
Basic principles of neural science through examination of structure and function of the major physiological systems within the brain and spinal cord. Offered Winter.
Prerequisites: IBS 7015 with a minimum grade of C
Restriction(s): Enrollment is limited to Graduate or Medical level students; enrollment limited to students in the School of Medicine.

IBS 7140 Foundations of Data Science Cr. 3
Introduction to basic concepts of linear algebra and their application to data analysis. MATLAB and PYTHON programs are introduced and employed as tools for practical implementation of computational methods. Offered Fall.
Restriction(s): Enrollment is limited to Graduate level students.
Equivalent: BMB 7140

IBS 7330 Advanced Molecular Biology Cr. 2
Modern topics in biochemistry, including nucleic acid dynamics, genomic structure, DNA replication and repair, transcription, RNA processing, translation and protein synthesis. Offered Winter.
Restriction(s): Enrollment is limited to Graduate level students.