BIOCHEMISTRY (BCHM)

Courses

BCHM 510. Fundamentals of Human Biochemistry. 2.5 Units.
Supports the organ system curriculum in the first year of medical education. Combines lectures, in-class quizzes, and case-based exercises to teach the biochemical basis for cell structure and function, emphasizing an integrated approach to the understanding of protein structure and function; intermediary metabolism of carbohydrates, lipids, proteins, and nucleic acids; and the metabolic patterns of selected tissues.

BCHM 515. Introduction to Bioinformatics. 2 Units.
Introduces bioinformatics methods and their application to biological research. Provides a conceptual understanding of the algorithms behind standard bioinformatics software, as well as practical experience in programs and databases commonly utilized in biological research.

BCHM 517. Scientific Foundations of Nurse Anesthesia Practice. 2 Units.
Provides students with an understanding and appreciation of scientific phenomena and with the ability to apply scientific methods, critical thinking, and problem-solving skills in exploring, conserving, and managing their environments.

BCHM 518. Fundamentals of Human Biochemistry. 2.5 Units.
Supports the organ system curriculum in the freshman year. Provides a foundation in the nature and properties of biological molecules in the human body that can support the subsequent years of medical training and students’ careers as practicing physicians. Combines lectures, in-class quizzes, and case-based exercises to teach the biochemical basis for cell structure and function, emphasizing an integrated approach to the understanding of protein structure and function; intermediary metabolism of carbohydrate, lipids, proteins, and nucleic acids; and the metabolic patterns of selected tissues.

BCHM 519. Medical Biochemistry, Molecular Biology, and Genetics. 4.5 Units.
Comprehensive course in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, provides a biochemical/genetic/molecular basis for understanding disease, and examines the mechanisms for genetic information flow in prokaryotic and eukaryotic cells. Course restricted to Biomedical Science Program (certificate).

BCHM 529. Fundamentals of Human Biochemistry and Genetics. 4.5 Units.
A lecture sequence for first-year medical students in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, and examines the mechanisms for genetic information flow in eukaryotic cells.

BCHM 530. Biochemical Basis of Human Disease SM. 2 Units.
A series of lectures for second-year medical students designed to provide a biochemical/genetic/molecular basis for understanding human diseases.

BCHM 544. Advanced Topics in Biochemistry. 2-4 Units.
Recommended for the Ph.D. degree (2+2+2). Recent examples include proteins: modern methods of study; selected cellular events in carcinogenesis; enzyme kinetics; transgenic plants for human health.

BCHM 550. Clinical Exposure in Oncology. 1 Unit.
Exposes students to various aspects of cancer care as they observe physicians delivering care to patients at all stages of cancer—newly diagnosed, preoperative, postsurgical, and survivorship. Discussion of diagnosis, workup, stage, and treatment plan. Attendance at didactic lectures, tumor board, and grand rounds that highlight the importance of a multidisciplinary approach to cancer management. Prerequisite: PHSL 555.

BCHM 551. Special Problems in Biochemistry. 2-6 Units.
BCHM 605. Seminar in Stem Cells and Cancer. 1 Unit.
In-depth seminar course in journal club format. Discussion of contemporary primary literature and exploration of stem cell biology as it relates to cancer. Presentation, critique, and discussion of papers students read from the primary literature. Introduces students to important concepts in the cancer field, increases understanding of stem cell biology, teaches students to critically evaluate scientific literature, and provides exposure to cutting-edge research techniques. Prerequisite: IBGS 511, IBGS 512, IBGS 522, IBGS 523.

BCHM 610. Cancer Journal Club. 1 Unit.
A journal-club format that includes discussion of recent advances in cancer research. Critical evaluation of the experimental approaches used in the papers discussed—designed to enhance students’ problem-solving and presentation skills, and to develop an appreciation for the rigor needed to conduct hypotheses-driven cancer research.

BCHM 697. Research. 1-10 Units.
BCHM 699. Dissertation. 1-5 Units.
BCHM 891. Biochemistry Elective. 1.5-12 Units.
Fourth-year elective that allows the student to create materials for team-based learning in the biochemical basis of human disease. Includes identifying a disorder that has clear and characteristic biochemical manifestations; as well as preparing a set of teaching notes, assessment tools, and application exercises.