BICM – BIOCHEMISTRY

BICM 200
Introductory Biochemistry
3 Credits Weekly (3-0-0)
Biochemistry is the study of life at the molecular level, the interface of chemistry and biology. Explore the complexity of the intracellular environment and its impact on the chemical reactions that sustain living systems. Discover how the structures of proteins and nucleic acids define their functions, and how molecular processes are interconnected to make organisms work efficiently. Learn about the principles of intermediary metabolism, focusing on the intricately coordinated pathways of carbohydrate metabolism. A strong foundation in Biochemistry will deepen your understanding of all other areas of Biology.
Prerequisites: Minimum grades of C- in BIOL 107 and CHEM 261.

BICM 310
Intermediary Metabolism
3 Credits Weekly (3-0-0)
Take a deep dive into the principles of intermediary metabolism, the intricate network of chemical reactions through which organisms obtain, store, and use energy essential for life. Discover how a small number of fundamental chemical reactions can drive a vast array of transformations, allowing organisms to break down nutrient molecules and synthesize cellular components. Explore the chemical logic of metabolic pathways, with an emphasis on carbohydrate and lipid metabolism. Examine how an understanding of metabolic pathways can provide insights into human health and disease.
Prerequisites: Minimum grades of C- in BICM 200, CHEM 102, and CHEM 263.

BICM 340
Structure and Function of Biological Molecules
3 Credits Weekly (3-3-0)
Underlying the great diversity of living organisms is the unity of biochemistry - we are all made of the same biological molecules: proteins, lipids, carbohydrates and nucleic acids. In this course you will learn the structural principles of biological molecules and discover how molecular structure governs the wide range of functions essential to life. You will be introduced to the experimental methods used to study proteins, carbohydrates and nucleic acids, and gain hands-on experience applying key techniques in the laboratory.
Prerequisites: Minimum grades of C- in BICM 200 and CHEM 263.

BICM 450
Biochemistry of Viruses
3 Credits Weekly (3-0-0)
Viruses are the ultimate parasites. Possessing only the minimal components that they need to reproduce, they use ingenious biochemical trickery to invade a host cell and commandeer its biological functions in order to complete their infectious cycle. While the best-known viruses are agents of disease, they have also enabled the discovery of many biological phenomena and leading to development of medical and technological applications. In this course we will explore the structure and function of viruses, delving into some of the latest advances in our understanding of virus biochemistry.
Prerequisites: A minimum grade of C- in BICM 320, BICM 330, or BICM 340, plus a minimum grade of C- in one additional course from the following list: BICM 310, BICM 320, BICM 330, BIOL 300, BIOL 313, GENE 369, GENE 370.