Year 1 Curriculum

Fall semester

BCHM 891 Thermodynamics, Protein Structure and Kinetics (3 credit hours, 5 weeks) Protein structure/function relationships, aspects of thermodynamics, enzyme/substrate kinetics, and receptor/ligand interactions
BCHM 892 Cell Metabolism (1 credit hour, 2 weeks) Synthetic and degradative pathways and cycles of eukaryotic cells, aspects of enzyme catalysis and metabolic regulation
BCHM 893 Molecular Biology (4 credit hours, 8 weeks) Prokaryotic and eukaryotic DNA structure, mechanisms of macromolecule synthesis (replication, transcription, translation), mechanisms of gene expression
CLS 710 Molecular Techniques Lecture I (2 credit hours, 15 weeks) Theory underlying molecular techniques involving recombinant DNA, genetic engineering, and genomics
CLS 711 Molecular Techniques Laboratory I (2 credit hours, 15 weeks) Advanced laboratory with practical application of selected nucleic acid and cell culture techniques for research and clinical settings

Spring semester

ANAT 894 Cell and Developmental Biology (5 credit hours, 11 weeks) Structure/function of membranes and organelle systems, cellular structure, gene expression related to cellular patterning
PHCL 901 Research Ethics (1 credit hour, 15 weeks) Introduction to research ethics including sources of error, fraud, plagiarism, conflict of interest, and confidentiality
CLS 720 Molecular Techniques Lecture II (2 credit hours, 15 weeks) Theory underlying protein purification, characterization, and analysis techniques including proteomics
CLS 721 Molecular Techniques Laboratory II (2 credit hours, 15 weeks) Advanced laboratory with practical application of selected protein and immunological techniques for research and clinical settings
CLS 730 Current Issues in Biotechnology (1 credit hour, 15 weeks) Research and lecture seminar series by academic and industry speakers on scientific, business, legal, social, and ethical issues in biotechnology