PROCESS BIOLOGY (PCB)

PCB 3063 Genetics
Credit Hours: 3
Prerequisites: BSCC 1011 or BSCC 1426 and CHM 1046 and CHML 1046 - all courses with a grade of "C" or higher or completion of AS in Veterinary Technology, Dental Hygiene, Medical Laboratory Technology, Respiratory Technology, or Nursing
An introduction to fundamental properties of inheritance in eukaryotic organisms, emphasizing examples in man. Basic concepts are developed for the nature, organization, transmission, expression, recombination, and function of genetic materials, and principle are derived for genetically characterizing populations.

PCB 3134 Cell Biology
Credit Hours: 3
Prerequisites: BSCC 1010, CHM 1046, and CHML 1046 - all courses with a grade of "C" or higher
This course serves as an in-depth exploration of cell structure and mechanics. Topics to be covered include structure and function of membranes, ion pumps, ion channels, transmembrane signaling, membrane transport, protein and nucleic acid functions, the role of endoplasmic reticulum (ER) and Golgi apparatus, the biosynthesis of intracellular organelles in animal and plant cells, the cytoskeleton, motility, cell-cell interactions, mitosis, the control of cell division, and discussions on molecular.

PCB 4233 Immunology
Credit Hours: 3
Prerequisites: BSCC 1010, CHM 1046, and CHML 1046 - all courses with a grade of "C" or higher or completion of an AS in Veterinary Technology, Dental Hygiene, Medical Laboratory Technology, Respiratory Technology or Nursing.This course entails the fundamental mechanisms of the immune system with applications in basic research medicine and public health
Mechanisms of innate and adaptive immunity, immunochemistry, antigen-antibody reactions, immunodeficiencies, and the development, activation, effector functions, and immune response regulation will be discussed.

PCB 4234 Biology of Cancer
Credit Hours: 3
Prerequisites: BSCC 2094, CHM 2210, and PCB 3063 - all courses with a grade of "C" or higher or completion of AS in Veterinary Technology, Dental Hygiene, Medical Laboratory Technology, Respiratory Technology or Nursing
This course focuses on the molecular, cellular, and genetic mechanisms involved in carcinogenesis, tumor growth, and metastasis. Students will examine specific mutations that lead to loss of genomic integrity and uncontrolled cellular proliferation as well as immune system responses to cancer. Environmental causes of cancer and future trends in diagnosis and treatment will be covered.

PCB 4422 Ecology and Evolutionary Biology
Credit Hours: 4
Prerequisites: BSCC 1011 and CHM 1045 - all courses with a grade of "C" or higher
This course presents basic principles of evolution and ecology and focuses on the diverse biotic and abiotic interactions at the population, community, and ecosystem levels. Topics include abiogenesis, the unity and diversity of life, genetics, mechanisms of evolutionary change, modes of speciation, long-term trends in evolution, the origin of modern humans, and ecological principles at the population, community, and ecosystem levels. In addition, contemporary socioscientific issues such as invasive species management, habitat degradation, global change, and sustainability are explored and related to ecological principles and theories.