BIOTECHNOLOGY (BIOT)

BIOT 101 - Biotechnology and Society (3)
Gen Ed Science
Prerequisite or Co-requisite: ENGL 70 or ENGL 75 or ESOL 100 or appropriate score on placement test
(formerly BI 140)
Presents an overview of biotechnology and its scientific foundation through introductory investigations of the cell, protein structure and function, genetic expression, ecological and evolutionary interactions, and technological applications and issues. Introduces how science blends with consumer applications, regulatory information and social issues to provide a detailed perspective of the interrelationship among science, technology and society. May include one or more mandatory field trips, and/or guest lecturers.

BIOT 102 - Regulatory Aspects of Biotechnology (3)
Prerequisites: ENGL 70 or ENGL 75 or (ESOL 72 and ESOL 73) or ESOL 100
(formerly BPM 102)
Presents the tenets of Current Good Manufacturing Practices (cGMPs) and regulations relevant to the biotechnology and bioprocessing manufacturing industries. Importance of inspections and monitoring are discussed. Work-related issues are introduced such as workplace conduct, employer expectations, company organization and policy, personal safety, and industrial hygiene. May include one or more mandatory field trips and/or guest lecturers.
This course is only offered in the Fall.

BIOT 103 - Basic Lab Techniques (1)
Prerequisite or Co-requisite: ENGL 70 or ENGL 75 or ESOL 100 or appropriate score on placement test
(formerly BPM 103)
Focuses on the basic principles and procedures used in all laboratory courses. Includes safety, equipment usage, areas of the lab and testing involved, quality control/quality assurance, lab math, and professionalism.
This course is only offered in the Fall.

BIOT 110 - Molecular Biology Techniques (4)
Prerequisite: BIOT 103
(formerly BPM 110)
Introduces the common molecular Biology techniques such as DNA & RNA extraction, cloning, RT-PCR, and CRISPR and their applications in the biotech industry. Emphasizes measurements of pH and spectrophotometry and biochemical and analytical methods.
This course is only offered in the Spring.

BIOT 130 - Forensic Biology (4)
Gen Ed Science
Prerequisites: ENGL 70 or ENGL 75 or (ESOL 72 and ESOL 73) or ESOL 100 AND [(Prerequisite: MATH 101A or MATH 120A or MATH 145S) OR (Prerequisite or Co-requisite: MATH 101 or higher credit level (non-A or S) MATH course) OR (appropriate score on mathematics placement test)]*
**MATH 101A, MATH 120A, MATH 145S can serve as prerequisites only, not co-requisites*
(formerly BI 130)
Introduces the principles and concepts of the biological aspects of forensic science. Examines the role of the laboratory in criminal investigation and human identification using forensic pathology, serology, anthropology, molecular biology, and other specializations. Meets the requirement for a general education science lab course.

BIOT 214 - Introduction to Biomanufacturing (4)
Prerequisites: (BSCI 223 or BI 120 or BSCI 263 or BI 203) and (BIOT 102 and BIOT 110)
(formerly BPM 214)
Introduces practices used in the industry to manufacture a biological material or product, as well as problem-solving strategies. Emphasizes and demonstrates aseptic technique, upstream and downstream processes, and quality control through hands-on laboratory activities. Meets the requirement for a science lab course.
This course is only offered in the Fall.

BIOT 220 - Cell Biology and Cell Culture Techniques (4)
Prerequisites: (BSCI 150 or BI 101) and CHEM 101
(formerly BI 220)
Introduces cellular organization, regulation, energy transport, and division. Discusses gene expression and interaction in relation to cellular biology. Presents tissue culture in the laboratory setting as a medium for bioprocess manufacturing. May include one or more mandatory field trips and/or guest lecturers. Meets the requirement for a science lab course.
This course is only offered in the Spring.

BIOT 222 - Cell Therapy and Flow Cytometry (4)
Prerequisite or Co-requisite: BIOT 220
Introduces students to the cell therapy field and the associated analytical flow cytometry technique. Students will master the principles of flow cytometry, sample preparation, acquisition, and data analysis. Other techniques used in cell therapy industry such as isolation of T cells, T cell activation, ELISA, fluorescent microscopy, and PCR will be explored. The course may include one or more guest lecturers.
This course is only offered in the Spring.

BIOT 224 - Gene Therapy Fundamentals (4)
Prerequisite: BIOT 110
Introduces students to the gene therapy field and the fundamentals of viral vectors. The overview of gene therapy drug development process, types of viral vectors and their components, and viral production and purification will be taught. Hands-on training for techniques used in the gene therapy industry including cell and virus banking, plasmid isolation, transfection and transduction, Tangential Flow Filtration, digital PCR, and ion exchange chromatography using AKTA go system will be taught. The course may include one or more guest lectures.
This course is only offered in the Fall.