# BIOTECHNOLOGY (BTX)

## Course Descriptions

**BTX 100. Introduction to Life Science Laboratory Skills. 3 Credit Hours.**
Introduction to Life Science Laboratory Skills is part of the Certificate of Specialization in Life Science Laboratory Assistant program. Students practice basic lab skills in a research laboratory setting. Pipetting, solution preparation, media preparation, dilutions, sterile technique, separation methods, lab math, quality control, documentation, and other appropriate skills are taught with an emphasis on standard lab instrumentation, calibration or verification, and maintenance.
Prerequisites: Placement into MTH 140 or higher or completion of MTH 140S with a minimum grade of "C", and Reading Proficiency

**BTX 104. Basic Laboratory Methods for Biotechnology. 3 Credit Hours.**
Basic Laboratory Methods for Biotechnology introduces laboratory skills necessary to enter the field. Topics and techniques include safety, sterile technique, laboratory math, quality systems, documentation, collection of data, metrology, filtration, solution preparation, molecular biology techniques, and other laboratory techniques.
Prerequisites: Placement into MTH 140 or higher or completion of MTH 140S with a minimum grade of "C", and Reading Proficiency

**BTX 152. Quantitative Methods in Biotechnology. 2 Credit Hours.**
Quantitative Methods in Biotechnology introduces students to common calculations encountered in a cellular-molecular research setting.
Prerequisites: Placement into MTH 140 or completion of MTH 140S with a minimum grade of "C" or better, CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency

**BTX 218. Microbiology for Biotechnology. 4 Credit Hours.**
Microbiology for Biotechnology provides a detailed exposure to structure, metabolism, genetics, and growth characteristics of microorganisms and viruses, as well as the role they play in disease, ecological, and industrial applications. The structure and function of the human immune system are also be covered.
Prerequisites: BIO 140 and CHM 105 with minimum grades of "C" and Reading Proficiency

**BTX 219. Biotechnology I. 5 Credit Hours.**
Biotechnology I introduces basic biotechnology skills in preparation for Biotechnology II. Topics and techniques may include safety, current Good Manufacturing Practices (cGMP), agarose gel electrophoresis, plasmid construction, polyacrylamide gel electrophoresis (PAGE), polymerase chain reaction (PCR), mammalian cell culture, rapid plant genotyping, and other molecular research techniques.
Prerequisites: BTX 104 or BIO 104 with a minimum grade of "C", BIO 140 with a minimum grade of "C", and Reading Proficiency

**BTX 220. Biotechnology II. 5 Credit Hours.**
Biotechnology II is a project-oriented course applying the fundamental DNA and protein manipulation techniques that are commonly used in biotechnology/bioengineering research laboratories in academia and industry.
Prerequisites: BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency

**BTX 221. Workplace Learning: Biotechnology. 3-6 Credit Hours.**
Workplace Learning: Biotechnology provides the student the opportunity to apply theory and skills learned in the classroom, learn new skills, and explore career possibilities while supervised by a professional in the field and a faculty member. Students observe and participate in the functions of the industry to enhance their preparation for entering the field. Minimum of 50 hours per credit hour in the workplace throughout the term.
Prerequisites: Concurrent or prior enrollment in BTX 220 or BIO 220 with a minimum grade of "C" and Reading Proficiency

**BTX 226. Advanced Topics in Biotechnology. 3 Credit Hours.**
Advanced Topics in Biotechnology focuses on current techniques used in biotechnology research and industry. Topics can include techniques from biomedical, pharmaceutical, agricultural, environmental, microbiological, bioprocessing, biocomputing, and/or bioethical aspects of biotechnology.
Prerequisites: Concurrent or prior enrollment in BTX 219 or BIO 219 with a minimum grade of "C" and Reading Proficiency

**BTX 228. Research and Presentation Skills for the Life Sciences. 2 Credit Hours.**
Research and Presentation Skills for the Life Sciences provides hands-on training, organizing, and presenting scientific data in document, poster, and oral formats. Students write cover letters and resumes. Students write written reports and create posters summarizing data generated in BIO 220, BTX 220, or from workplace learning. This data is presented in poster format with corresponding oral presentations to various audiences. Mock employment interviews are also be conducted.
Prerequisites: Entry into this course must be approved by the program coordinator, and Reading Proficiency
Corequisites: BTX 220