

BIOTECHNOLOGY (BT)

BT 302: Molec & Immuno Tech**Credits:** 4**College:** Jefferson College of Health Professions**Prerequisites:** LS 302**Schedule Type:** Lab**BT 303: Molecular Prep Techniques**

Basic aspects of biotechnology laboratory work gel preparation, buffer composition, media preparation, streaking and isolating bacteria.

Lecture and laboratory.

Credits: 3**College:** Jefferson College of Health Professions**Schedule Type:** Lab, Lecture, Lecture/Lab**BT 305: Survey of Biotech Applications****Credits:** 3**College:** Jefferson College of Health Professions**Schedule Type:** Lecture**BT 310: Fundamental Molec Techniques**

Discussion, demonstration and practice of basic molecular techniques including DNA/RNA isolation, restriction digest, gel electrophoresis and blotting techniques. Lecture and laboratory. Co-requisite: BT 303/503

Credits: 4**College:** Jefferson College of Health Professions**Schedule Type:** Lab, Lecture, Lecture/Lab**BT 320: Cell and Tissue Culture**

This course offers basic technique training to handle in vitro cell culture as well as cellular and molecular biological techniques. You will be introduced to the procedures and the underlying scientific principles of cell culture and recombinant protein expression in a variety of cell systems including yeast, insect, and mammalian cell lines. In addition, you will learn techniques to analyze cell phenotype and function (immunohistochemistry, immunofluorescence)

Credits: 4**College:** Jefferson College of Health Professions**Schedule Type:** Lab, Lecture, Lecture/Lab**BT 323: Biotechnical Chemistry****Credits:** 3**College:** Jefferson College of Health Professions**Schedule Type:** Lab, Lecture**BT 325: Product Development&Management****Credits:** 3**College:** Jefferson College of Health Professions**Schedule Type:** Lecture, Lecture/On-Line**BT 401: Systems Biology****Credits:** 2**College:** Jefferson College of Health Professions**Prerequisites:** LS 302**Schedule Type:** Lecture**BT 403: Human Genetics****Credits:** 3**College:** Jefferson College of Health Professions**Schedule Type:** Lecture, Lecture/On-Line**BT 405: Appld Microbial Biotechnology****Credits:** 3**College:** Jefferson College of Health Professions**Schedule Type:** Lecture**BT 406: Intro to Bioinformatics****Credits:** 2**College:** Jefferson College of Health Professions**Schedule Type:** Lecture, Lecture/On-Line**BT 410: Molecular Diagnostic Technique**

Laboratory course introducing the student to clinical/diagnostic applications of molecular and biochemical techniques. Laboratory sessions include discussion, demonstration and hands on practice of: isolation of nucleic acids from biological samples, use of hybridization based assays in diagnostic procedures, preparation of probes, clinical application of PCR and RT-PCR, Western blot analyses, protein truncation test, electrophoretic and microarray analysis of genetic polymorphisms; next gen sequencing and proteomics utilization in diagnosis/prognoses determination of disease. An emphasis will be placed on students learning to follow procedures from the literature. Lecture content will provide students with an introduction to the theory and standards of practice of the molecular diagnostic laboratories as well as molecular pathology as it pertains to the development of diagnostic tests

Credits: 4**College:** Jefferson College of Health Professions**Prerequisites:** BT 310**Schedule Type:** Lecture, Lecture/Lab**BT 411: Protein Purification & Charact**

Course covers current methods and theories pertaining to fractionation and purification of proteins from cellular and recombinant sources; including ion exchange, affinity, and size-exclusion based methods. Methods of protein analysis are also discussed including various spectroscopic methods: NMR, fluorescence, mass-spectroscopy, and circular dichroism. Current topics in proteomics are discussed including methods for understanding protein-protein and protein-ligand interactions are covered. Applications in clinical, research and pharmaceutical areas will be discussed. Course will have both lecture and hands-on components

Credits: 3**College:** Jefferson College of Health Professions**Prerequisites:** BT 310**Schedule Type:** Lecture, Lecture/Lab**BT 412: Biotechnology Practicum I****Credits:** 3**College:** Jefferson College of Health Professions**Prerequisites:** BT 320 and BT 410 and BT 411**Schedule Type:** Practicum**BT 416: Comprehensive Exam****Credits:** 0**College:** Jefferson College of Health Professions**Schedule Type:** Exam, On-Line, Seminar**BT 422: Biotechnology Practicum II****Credits:** 3**College:** Jefferson College of Health Professions**Prerequisites:** BT 320 and BT 411**Schedule Type:** Clinical, Practicum**BT 432: Biotechnology Practicum III****Credits:** 3**College:** Jefferson College of Health Professions**Prerequisites:** BT 320 and BT 411 and BT 410**Schedule Type:** Clinical, Practicum

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BT 442: Biotechnology Practicum IV

Credits: 3

College: Jefferson College of Health Professions

Schedule Type: Clinical, Practicum