Biotechnology
Certificate Program

Core

- **BT 210: Introduction to Biotechnology** 1 Hour
  A career in biotechnology is the main theme of this course. Following a brief introduction to molecular biology, the course focuses on career choices including pharmaceutical, molecular diagnostics, clinical medicine, and bio-manufacturing. A special emphasis will be on opportunities for employment in Indiana Life Sciences companies.

- **BT 220: Fundamental Biotechnology Methods I (BT220L Lab)** 4 Hours
  This is the gateway course to the other laboratory courses in the program teaching basic laboratory skills, methods and techniques. Laboratory orientation, volumetric measurements, gravimeter measurements and molecular biology, along with skill-building exercises are the main themes of the early portion of this course.

- **BT 225: Laboratory Math for Biotechnology** 1 Hour
  Basic math skills are required for success in diverse areas of laboratory methods. In order to decrease the disruption in laboratory instruction that occurs every time a new math application arises, the program requires all students complete this one-credit introductory course in laboratory-based applications.

- **BT 310: Molecular Biotechnology Mthd II (BT310L Lab)** 4 Hours
  This laboratory course emphasizes observation and data collection and analysis. The main theme is isolating and working with nucleic acids. Students will grow and maintain bacteria, use recombinant technologies and make all buffers and media used in the experiments.

- **BT 320: Biotech Instrumentation Mthd III (BT320L Lab)** 3 Hours
  Students will be introduced to key laboratory techniques routinely used in molecular biology to conduct experiments of scientific inquiry in fields of molecular biotechnology and clinical diagnostics.

- **BT 230: Quality Assurance for Biosciences** 1 Hour
  This course provides a review of current quality assurance principles and applications. Emphasis is placed on Federal Drug Administration (FDA) regulations and quality control for the biotechnology, biopharmaceutical, and biomedical device industries.

- **BT 235: Bioinformatics** 2 Hours
  Provides introduction to current topics in bioinformatics and computational biology. Includes methods for accessing and interpreting biological data from government and research institutions’ data bases.

- **BT 325: Cell Culture Techniques** 4 Hours
  A study of cell culture techniques, the laboratory emphasizes the principles and practices of initiation, cultivation, maintenance, and the preservation of cell lines including applications such as cytotoxicity assay development and analysis.

- **BT 240: Biotechnology in Medicine** 2 Hours
  This course is designed to gain understanding of the applications of biotechnology to medicine. Students will gain awareness of biotechnology careers in the areas of nanotechnology and translational medicine. Basic technologies used in medical application, including nanotechnology, and translational medicine techniques will be introduced.

- **BT 410: Biomanufacturing** 4 Hours
  This is a foundation course for the field, introducing basic documentation and standard operating procedures which are commonly used in accordance with GMP bio-pharmaceutical manufacturing.

- **BT 420: Molecular Diagnostics** 4 Hours
  Advanced molecular biology methods used in standard and automated clinical chemistry assays are lab focus. Technical competency in assay optimization, instrument operation and data analysis for advanced instrumentation is stressed.

- **BT 430: Internship - Molecular Diagnostics** 6 Hours
  This is an experience external to the college for a qualified student in a specialized field involving a written agreement between the educational institution and an industry partner (IP). The experience is external to the College, where the student is mentored and supervised by a workplace employee. May be paid or unpaid.

- **BT 431: Internship - Genomics** 6 Hours
  This is an experience external to the college for a qualified student in a specialized field involving a written agreement between the educational institution and an industry partner (IP). The experience is external to the College, where the student is mentored and supervised by a workplace employee. May be paid or unpaid.

- **BT 432: Internship - Biomanufacturing** 6 Hours
  This is an experience external to the college for a qualified student in a specialized field involving a written agreement between the educational institution and an industry partner (IP). The experience is external to the College, where the student is mentored and supervised by a workplace employee. May be paid or unpaid.

- **BT 433: Internship - AgroTechnology** 6 Hours
  This is an experience external to the college for a qualified student in a specialized field involving a written agreement between the educational institution and an industry partner (IP). The experience is external to the College, where the student is mentored and supervised by a workplace employee. May be paid or unpaid.