

Career Opportunities

A certificate in cell and tissue culture will prepare students for entry level positions in biotechnology and pharmaceutical companies as well as medical research institutions. These positions may include:

Cell Culture Technicians

- work in research and development companies and laboratories to grow bacteria, plant and animal cells in culture flasks and plates using aseptic techniques
- operate and maintain basic laboratory equipment such as centrifuges, pH meters, analytical balances, laminar flow hoods, spectrophotometers, light microscopes, and CO2 incubators
- prepare cell growth media, reagents, buffers, and stains following standard operating procedures (SOPs).
- keep detailed and accurate documentation of laboratory procedures

Bio Manufacturing Technicians

- work in a biomanufacturing facilities as "upstream" technicians to produce proteins in cells using Good Manufacturing Practices (GMP)
- operate and maintain fermenters, bioreactors, cell harvesters, centrifuges other production equipment
- Follow and maintains batch records, SOPs, and other documents to comply with GMPs

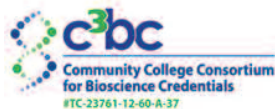
To explore other career opportunities in biotechnology visit: biotech-careers.org or www.biomanufacturing.org/targetjobs.html

Bucks County Community College is committed to providing equal education and employment opportunities. This encompasses persons in legally protected classifications in regard to race, color, national origin, sex, handicap, sexual orientation, age, religion, disabilities, and Vietnam military veterans. The College provides reasonable accommodations for persons with disabilities in accordance with the Americans With Disabilities Act (ADA). Please call the Campus Coordinator for Equal Employment Opportunity in advance to request or clarify accommodations or to address issues concerning equal opportunities at 215-968-8090. The EEO Office is located in Room 130, Tyler Hall.

The Security Information Report required by the College and the University Security Information Act of Pennsylvania and the "Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act" of the Federal Government is available on the web, at the Office of Security and Safety, and at other campus locations.

14145

The biotechnology programs at Bucks are supported by two national grant efforts, described below.



The Community College Consortium for Bioscience Credentials, (c3bc). Launched in September 2012, c3bc is a bio

manufacturing job training program funded by a 15 million dollar Trade Adjustment Assistance Community College Career Training (TAACCCT) grant from the US Department of Labor and Training Administration. The nationwide consortium consists of 12 community colleges, including Bucks County Community College, as well as industry and Workforce Development Partners.



The NBC2 a National Science Foundation Advanced Technology Education center of excellence focused on educating and training an advanced technological workforce for the rapidly

growing biomanufacturing industry. NBC2 consists of six Hubs at community colleges across the nation, including Bucks County Community College. Hubs consist of biomanufacturers and the community colleges, high schools and universities that train biomanufacturing technicians for local industry. The NBC2 website is www.biomanufacturing.org.



Visit our website at:

www.bucks.edu

Science, Technology, Engineering, and Math (STEM) Department

215.968.8305
science@bucks.edu

Biotechnology Cell and Tissue Culture



Bucks County
Community College

Newtown • Bristol • Perkasié • Online

Where to learn. Where to return.



Biotechnology Cell and Tissue Culture

The strength and continued growth of the Biotechnology industry in the Philadelphia metropolitan area has created a need for technicians with cell culture expertise. Students completing the Cell and Tissue Culture Certificate will be prepared for employment as skilled technicians in biotechnology, biomanufacturing, pharmaceutical, and academic laboratories. Workers currently employed as biotechnology technicians can also benefit by enhancing their skill sets.

FAQs

Q. What is cell and tissue culture?

A. Cell and tissue culture involves the growth, use, and maintenance of cells. Cell and tissue culture are commonly issued in biotechnology and pharmaceutical industries to produce, characterize, and test biological molecules.

Q. What skills will I learn?

A. Training includes standard biotechnology laboratory practices and techniques including biosafety, aseptic techniques, regulatory requirements regarding data and practices (GLP, GMP), operation and maintenance of equipment, and solution and media preparation.



Q. Will this certificate help me get a job?

A. Biotechnology is one of the fastest growing industries in Bucks County and the surrounding tri-state region. The region is home to a number of pharmaceutical and medical and diagnostic testing companies as well as nationally renowned research institutions. As these industries grow, many will be seeking to fill entry level technician positions. Biological technicians have been designated by the PA Dept of Workforce Development as one of the state's high priority occupations- "job categories that are in demand by employers, have higher skill needs and are most likely to provide family-sustaining wages".

Q. How long will it take to complete the program?

A. Students are required to complete 4 courses (16 credits) and can obtain the certificate in two academic semesters.

Course of Study

Students will be trained to perform basic biotechnology laboratory procedures, operate and maintain standard laboratory equipment, aseptically culture and maintain cell cultures and perform advanced techniques in cell culture and biomanufacturing. Students must successfully complete the following 4 courses (16 credits) to qualify for the certificate.

BIOT125	Biotechnology Methods and Techniques	4
BIOT205	Cell and Tissue Culture	4
BIOT221	Biomanufacturing	4
CHEM121	Chemistry I	4
TOTAL		16

BIOT125 – Biotechnology Methods and Techniques

An introduction to common practices and methodologies of Biotechnology. Students will get hands-on experience using, and maintaining laboratory instruments. Laboratory procedures will include solution preparation, aseptic technique, protein separations and assays, DNA electrophoresis, and Polymerase Chain Reaction (PCR). Lectures will support the laboratory activities.

Corequisite/prerequisite: CHEM121, or department permission.

BIOT205 – Cell and Tissue Culture

An introduction to the theory, standard practices, and methodologies of animal cell culture. This course emphasizes hands-on laboratory experience including sterile technique, media preparation, cell counting, maintenance and storage of cell lines, and scale-up. Lectures will support the laboratory activities.

Prerequisite: BIOT125 • Corequisite/prerequisite: BIOL121, or department permission.

BIOT221 – Biomanufacturing

The course provides a solid foundation in the biomanufacturing process of biopharmaceuticals, including producing them under current Good Manufacturing Practices. Students use bacteria, mammalian and/or yeast cells to produce human proteins using the tools of manufacturing, such as upstream and downstream processing of proteins and quality control of protein production.

Prerequisite: BIOT125 (C or better) or permission of the STEM department • Corequisite: None