BIO-SCIENCE / ENGINEERING CLUSTER

INDUSTRY CERTIFICATIONS
- OSHA 10-Hour General Industry Safety
- Massachusetts Biomanufacturing Certification

POSSIBLE CAREER PATHWAYS
- Biomedical Engineering
- Forensic Scientist
- Environmental Science
- Research Assistant
- Research Associate
- Laboratory Technician
- Quality Control
- Quality Assurance
- Process Development Science
- Maintenance and Instrumentation
- Research and Development
- Scientist
- Bioinformatics

STARTING SALARY*
Earnings vary by specialty
Biochemists and Biophysicists
$44,320 - $139,440
Microbiologists
$38,240 - $111,300
Zoologists and Wildlife Biologists
$33,550 - $90,850
*Source: Bureau of Labor Statistics
Website: bls.gov/oh

COLLEGE PARTNERS
- Middlesex Community College

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Biotechnology

PROGRAM DESCRIPTION
The Biotechnology program provides students with the ability to explore and research the many careers in the biotechnology industry such as Biochemist, Marine Biologist, Microbiologist Botanist, Physiologist and Biophysicist. Biotechnology is the science for this century. Students in this program utilize the sciences of biology, chemistry, physics, engineering, computers, and information technology to develop tools and products for everyday living and future uses. As part of the Biotechnology program, students who complete 48 credit hours in Biotechnology and attain the related competencies are eligible for a certificate in Biomanufacturing. A certificate in Biomanufacturing prepares students for entry level positions in many areas of biopharmaceutical production with excellent opportunities for advancement and career growth. This certificate also augments a student’s ability for further education in bio-related fields, which many of our students do pursue. Students within the Biotechnology program who plan on pursuing a career in science by continuing their education at a four-year institute should inquire with their guidance counselor regarding appropriate course selection.

COURSE CONTENT
- Introduction to Biotechnology
- Biotechnology Career Exploration
- Aseptic Techniques
- Genetics
- DNA Analysis, Restriction, and PCR
- Plant Tissue Culture
- Instrumentation and Laboratory Techniques
- Statistical Process Control
- FDA Regulations and Controls
- Sustainability and Green Technologies
- Basic Instrumentation (Microscopes, pH Meters, Autoclave, etc.)
- Molecular Biology
- Good Manufacturing Practices
- Good Documentation Practices
- Microbiology
- Biology
- Marine Biology
- Writing Standard Operating Procedure (SOP)
- Quality Control and Assurance

SIGNIFICANT POINTS
An Associate’s degree provides the required education for entry level industry positions, such as laboratory technicians or research assistants. A Bachelor’s degree is sufficient for some jobs in applied research or product development. A Ph.D. is usually required for independent research in the biotechnology field.

ADVISORY COMMITTEE PARTNERS