

What do I need to know about the Biotechnology/Bioscience Tech Prep Program?

How do we know there is a need for qualified biotech professionals?

Biotechnology is part of STEMM programming, which includes courses in Science, Technology, Engineering, Mathematics, and Medicine.

STEMM courses are highly promoted all over the country to address a growing demand for trained professionals in these important areas.

Recent advancements in biology have created a fast-growing career field where new products are being developed daily for use in forensics, agriculture, medicine, and industrial applications to name a few.

According to the Bureau of Labor Statistics Occupational Outlook Report (www.bls.gov/oco/) the demand for skilled workers in the biological sciences is expected to grow "faster than the average."

What are some things I would do/learn Junior Year?

- Introduction to the Biotechnology industry
- Techniques for extracting DNA from cells (bacterial, human, and plant)
- Copy DNA using PCR technique
- Transfer DNA into bacteria for expression
- Cross-breed different fruit flies to study genetics
- Produce, separate, and purify proteins
- Analyze a non-disease causing gene in your body to predict a trait
- Use forensic biotechnology to analyze a crime scene
- Become a member of HOSA (Health Occupation Students of America)
- Learn techniques to culture and classify bacterial cells in the laboratory
- Use gel electrophoresis to analyze DNA in different ways

What are some things I would do/learn Senior Year?

- Genetically modified foods; the good and the bad
- Use molecular techniques to detect genetically modified foods
- Test various plants species for their potential use as medicines
- Stem cells, cloning, tissue regeneration, and gene therapy
- Animal research techniques and guidelines
- Laboratory safety regulations
- Human anatomy and physiology

- Dissections of sheep hearts and brains, blood typing

Some examples of projects we do in Biotechnology...

- Showcase- similar to a science fair but students work in small groups to compete against Biotech programs from other schools
- HOSA competitions (Potential for both State and National level events)
- Scientists For the Future (SFF) overnight program at the Cincinnati Zoo's center for Conservation and Research of Endangered Wildlife (CREW)
- Research/Presentation concerning: Biotech related careers, famous scientists in Biotech, genetic disease screening, Bioethics issues
- Site Tour of Genentech Inc. in South San Francisco, Ca. (the "Birthplace of Biotechnology") *Seniors only.
- Local lab tours and guest speakers (Children's Genetics Lab, CompuNet Clinical Labs, WSU, Sinclair, etc...)
- Senior Career Portfolio

How will I benefit from taking Biotechnology/Bioscience Tech Prep?

Upon completion, students can qualify for:

- college credit (earn up to 11 college credit hours) *see below
- \$3,000.00 scholarship
- advanced standing
- valuable college/career direction

What are the Possible College Credits that can be earned?

- Human Biology; BIO-1107 (3 credits)** taken with Mr. Cary during senior year in the Biotechnology block. Requires an average passing grade of 70% on 6 tests administered in class throughout the school year.
- Introduction to Biotechnology and Bioethics; *BTN-1110 (3 credits)**
Students automatically receive credit for this course upon successful completion of the Biotechnology program
- Laboratory Safety and Regulatory Compliance; *BTN-1120 (2 credits)**
Students automatically receive credit for this course upon successful completion of the Biotechnology program
- Math 1270 (3 credits)** completed senior year; entails 2 midterms and a final exam. Students complete several practice tests to prepare.

Completion of two years in the program with a minimum GPA of 2.5 is required for these credits to be awarded on a transcript provided by Sinclair Community College

What are some possible career areas I could pursue?

- Specimen Processor
- Lab Technician
- Chemical Technician
- Pharmaceutical Mfg. and Prod.
- Medical Lab Technician
- Wildlife Conservationist
- Biochemist
- Senior Research Scientist
- Physician
- Genetic Engineer
- Chemical Engineer
- Pharmaceutical Salesperson
- Agricultural Scientist
- Calibration Technician
- Research Assistant
- Quality Assurance Technician
- Quality Control Technician
- Genetic Counselor
- Geneticist
- Microbiologist
- Molecular Biologist
- Biologist
- Physician Assistant
- Forensic Scientist
- Veterinarian
- Food Technologist
- Ecologist
- Animal Care Technician

Colleges attended by former Biotech students:

- Sinclair Community College
- Wright State University
- University of Dayton
- University of Kentucky
- Kent State University
- Defiance College
- University of Toledo
- Bowling Green State University
- Ohio University
- Miami University
- University of Cincinnati
- Eastern Kentucky University
- Ohio State University
- Dartmouth College
- Purdue University
- University of Maryland

How many periods a day is Biotechnology/Bioscience Tech prep?

- Junior year-** 2 High School periods; 3rd and 4th /3 HS credits- (1 science)
- Course Names: Intro to Biotech, Intro to Bioethics, Molecular Biology
- Senior year-** 2 High School periods; 6th and 7th /3 HS credits- (1 science)
- Course Names: Anatomy and Physiology, Bio lab Safety, Life Science

How do I apply for a position in the Biotechnology/Bioscience Program?

After attending the Career Expo in January, fill out an application in advisory and check the Biotechnology box on this form. Return the application to your advisor or the career education office by the due date. After that, Mr. Cary will contact you through advisory and schedule an interview time. If you have any further questions or need more information about the program, feel free to speak with Mr. Cary in room C264 anytime, or e-mail Mr. Cary at marc.cary@centerville.k12.oh.us

**THANK YOU FOR YOUR INTEREST IN THE
BIOTECHNOLOGY/BIOSCIENCE PROGRAM!**