



NJ PATHWAYS
TO CAREER OPPORTUNITIES
Aligning Education to Build an Innovative Workforce

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PATHWAYS ACCOMPLISHMENTS

Center of Workforce Innovation for
Research & Development



Catherine Starghill, Esq.

Vice President

*New Jersey Council of
County Colleges*

Executive Director

*New Jersey Community College
Consortium for Workforce &
Economic Development*

WELCOMING REMARKS





Chris Emigholz

Chief Government Affairs Officer
*New Jersey Business & Industry
Association*

WELCOMING REMARKS



FOUNDATION & VISION

Aaron Fichtner, PhD

President

*New Jersey Council of
County Colleges*



Community College Presidents

Dr. Eric M. Friedman

President

Bergen Community College

Dr. Mark McCormick

President

Middlesex College



Foundation & Vision

This vision is focused both on increasing the attainment of post-secondary industry credentials and degrees to meet the state's **credential attainment** goal of 65x25 and addressing persistent and troubling **equity gaps** in the state's economy. The ultimate goal is to help more individuals achieve a family-supporting career.

Ultimately, we want to ensure that more New Jerseyans are prepared to:

- Have family supporting careers
- Be prepared to thrive and contribute in a diverse society and democracy
- Have fulfilling lives



Foundation & Vision

1. Build strong partnerships with businesses and labor unions

2. Ensure that high school students have a clear path to a postsecondary credential or degree

3. Ensure that community college students have a path to further education

4. Ensure that credential programs are responsive to the changing needs of the economy

5. Create pathways to credentials and degrees for adults through partnerships with community based organizations and workforce development organizations

6. Create new on-ramps to community college degree programs through pathways from non-credit programs and PLA and partnerships with employers

7. Enhance our capacity to use data to inform the development of pathways





Veda Shamsid-Deen, Esq.

Director, Technology & Innovation,
Strategy and Workforce Partnerships

*New Jersey Community College
Consortium for Workforce
Development*

WELCOMING REMARKS



Our Education Partners

Bergen Community College
Middlesex College

Bergen Applied Tech High School
New Jersey Institute of Technology



Our Industry Partners





Biomanufacturing/Biopharmaceutical/ Process Technology

Michael Ansonoff, Middlesex College



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Pathway 1 – Biomanufacturing/Biopharmaceutical/Process Technology

Connection to High School (Non Credit)

Middlesex College (MC) developed a **Summer Exploration Program, B.E.S.T. (“Biotechnology Exploration Summer Training”)**, for high school students who are interested in biotechnology (encompassing biomanufacturing and biopharmaceuticals). The program is intended to increase high school students’ awareness of careers and opportunities in the Biomanufacturing sector, specifically **to acquaint them with careers in Biotechnology, Biopharmaceutical, and Process Technology**. This summer exploration program is an onramp for students who are or may become interested in pursuing an Associate of Applied Science in Process Technology or Associate of Science in Biotechnology.

High school students who have completed a year of biology and a year of chemistry are eligible for the program. Marketing materials (including fliers advertising this program) were disseminated to Middlesex County high schools in early February 2023. The program **will run from June 26, 2023 through Aug 3, 2023**. Sixteen students will be chosen by lottery to participate.

MC created an **Implementation Guide** with program objectives/learning outcomes and a **lab manual** containing all of the relevant lab exercises. Introductions to all of the lab exercises, lecture presentation materials, the lab protocols, as well as suggestions for outside speakers and/or activities are made available for other education institutions to replicate this program.

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Pathway 1 – Biomanufacturing/Biopharmaceutical/Process Technology

Adult Learners

Middlesex College (MC) is in the process of creating a non-credit workforce development training course (Aseptic Technique) to serve as the first course in a sequence of courses that ultimately will stack (for credit) into the Associate of Applied Science in Process Technology or Associate of Science in Biotechnology degree programs. (MC is considering college credit evaluation / prior learning assessment simultaneously as these non-credit courses are under development.)

The Aseptic Technique course will consist of competencies required as a foundation for all other laboratory techniques in this industry. The Aseptic Course will be completed by early Summer 2023 and **will run in late Summer or early Fall 2023.**

Following the completion of the Aseptic Technique course, MC will move on to the development of additional non-credit, stackable courses. Ultimately, the stackable curriculum is envisioned as follows: (1) Aseptic Technique Certificate, (2) Essentials of Biomanufacturing Certificate, (3) Cell and Gene Therapy Technician Certificate, and (4) Protein Expression Technician Certificate. An additional capstone course (Advanced Biomanufacturing) is being considered to round out the curriculum culminating into the industry credential of the **Biomanufacturing Process Technician Certificate.**

Based on discussions with industry partners, students completing this industry focused curriculum will be prepared to enter the workforce with the requisite skills to be productive contributors.



Research and Development

Emily Vandalovsky, Bergen Community College



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Pathway 2 – Research & Development

Connection to High School (Non-Credit)

Bergen Community College conducted several **career awareness** events/programs for high-school and middle-school participants to raise awareness and develop an interest in Research and Development **careers in general and the BCC research program in particular. The STEM Research Exploration** series was established to promote interest in research-driven learning, with targeted workshops for high-school and middle-school students on college research and related careers.

These programs included R&D Pathway Kickoff sessions, STEM Research Exploration Series at Applied Tech High School and STEM C² Research Summit series (rescheduled for October 6, 2023). The STEM Research Awareness programs ran through 2022 and continue through Spring 2023.

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Pathway 2 – Research & Development Connection to Community College (Non-Credit)

Bergen Community College (BCC) identified several non-credit, mini-courses as potential courses for badge-bearing learning experiences for **Basic Science Research Methods and Applied Science Research Methods**.

The courses included: (1) Speech Coaching for STEM Presentations, (2) Technical Writing for Scientific Publications, (3) Project Management for STEM Academic Research, (4) Applied Statistical Computing (R Language) and Experimental Research Design, (5) Introduction to Artificial Intelligence (AI), and (6) Introduction to Soldering and Microcontrollers

The Research and Development Pathway team has started evaluating the above-mentioned mini-courses and aligning them to the corresponding industry badges/credentials. The review process should be completed in May 2023. Additional courses may be considered.

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Pathway 2 – Research & Development

Experiential Learning/Pilot

Bergen Community College embedded research-based learning, experiential learning opportunities stackable into the Associate of Science degrees in Biology, Biotechnology, and Chemistry.

The experiential learning opportunities are as follows: (1) Microbial Mechanisms of Pathogenicity was embedded in the Microbiology course, (2) Aero Microbiology was embedded in the Environmental Microbiology course, (3) Antibiotic Sensitivity Testing was embedded in the Microbiology course, and (4) Nanoparticles lab was added to the General Chemistry lab course.

A total of 143 students enrolled in these courses during Fall 2022 benefited from the newly developed research-based, experiential learning opportunities thus improving their R&D skills in preparation for the students' entry into the workforce.

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Pathway 2 – Research & Development

Experiential Learning/Pilot

Bergen Community College embedded research-based learning, experiential learning opportunities into general science courses.

The experiential learning opportunities are as follows: (1) hands-on lab added to the Embryology course, (2) hands-on lab added to the Botany course, and (3) applied research project added to the Principles of Ecology course.

A total of 67 students enrolled in these courses during Fall 2022 benefited from the newly developed research-based, experiential learning opportunities thus improving their R&D skills in preparation for the students' entry into the workforce.



Q&A

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Research & Development





Year 2 Preview

Catherine Starghill, Esq.



**GIVE US
YOUR
FEED-
BACK**



UPCOMING EVENTS



STATEWIDE INDUSTRY COLLABORATIVE MEETINGS

Various Virtual Meeting Dates Spanning From
Tuesday, April 18, to Wednesday, April 26





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