

National Career Pathways Network CONNECT 2023 Conference

Harris Conference Center, Central Piedmont Community College campus, Charlotte
 Session slot: Thursday, Nov. 9, 2023 3:45 – 4:30 pm

BETA SKILLS GRANT Update



BETA Skills(Biomedical Emerging Technology Applications)

- Maintain Safe and Productive Work Environment
- Comply with Regulations and Standards
- Conduct Good Documentation Practices
- Monitor, Maintain, Use, Troubleshoot and Repair Equipment
- Maintain Inventory of Raw Materials, Prepare Materials/Supplies for use
- Perform Measurements, Tests and Assays
- Perform Mathematical Manipulations
- Manage and Communicate Information

Update

▪ **BETA Supplement awarded**, to progress a Micro-credential - Professional Development program, 3 Industry vetted micro-credentials(with Biosciences Core Skills Institute) were developed and delivered in a Professional Development session, June 2023. **GDP, Problem Solving and Audit Interactions** were found to be very useful.

▪ **BETA Summer Industry Immersion Professional Development- BETA Summer Industry Fellows-** Working with local employers, 5 community college instructors were placed in regional organizations in the areas of biomanufacturing production, clinical research, medical devices, and regenerative medicine. The evaluation reports are very positive on the experience. Each had a unique 8 weeks industry/institutional experience that will help deliver a more meaningful curriculum.

▪ **BETA Next Steps: Bioscience Administrators Program(BAP)-** 10 CC Administrators will be immersed into the area of BETA Skills and the Biosciences in June 2024.

NSF ATE DUE #1800909

Thank you !

Contact: Russ H. Read
rread@forsythtech.edu
www.biotechworkforce.org

BETA Skills Agenda - Session

1. Russ Read - Overview of the BETA Summer Fellows Industry Program & Q&As

Our Fellows

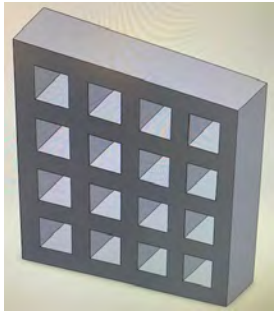
- Dr. Daniel Moore of Southern Maine Community College paired with Dr. Luke Burnett, CEO, KeraNetics
- Dr. Brenda Grubb of Central Carolina Community College paired with Jon Tucker, Site Lead of Pfizer at Sandford, NC
- Patricia Alfing MS, of Davidson-Davie Community College paired with Jennifer Byrne CEO, of Javara
- Dr. Andrew Vinal of Wake Tech Community College paired with Patti Shugart COO, of Carolina Liquid Chemistries
- Dr. Cheryl Burrell of Forsyth Technical Community College paired with Dr. Sang Jin Lee, Wake Forest Institute for Regenerative Medicine (Video)

Forsyth Tech - Dr. Cheryl Burrell

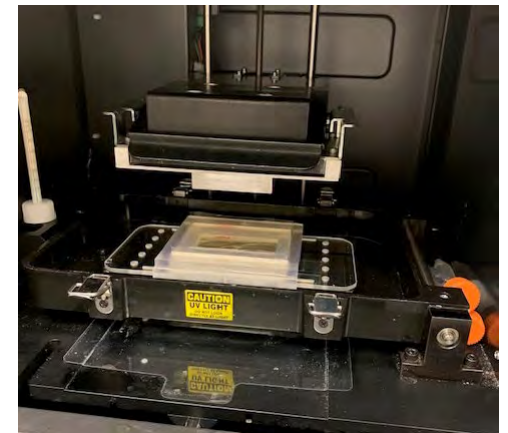
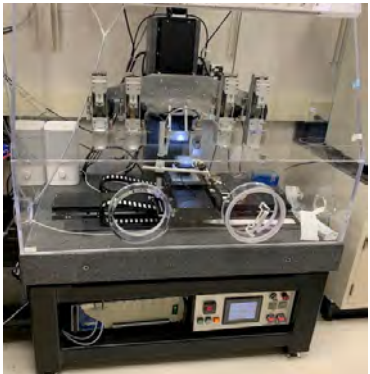
- WFIRM – Host- Dr. Gary Green
- Dr. Burrell is coordinator of the Forsyth Tech Biotechnology Program
- Paired with Dr. Sang Jin Lee, Wake Forest Institute for Regenerative Medicine



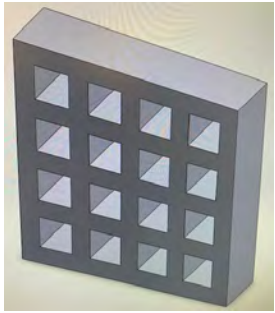
BETA Summer Industry Fellowship Objectives and Highlights



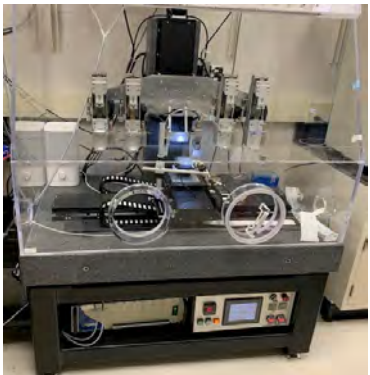
- Bioprinting: Combining living cells with hydrogel to create 3D tissue structures.
- Goal: Achieve bioprinting competency for teaching and student preparation for workforce.
- Designed 3D structures (SolidWorks).
- Printed with Digital Light Processing (DLP) and Extrusion-Based Printers.
- Made hydrogels and bioink.
- Printed various tissue structures using cells like breast cancer, fibroblasts, stem cells etc..



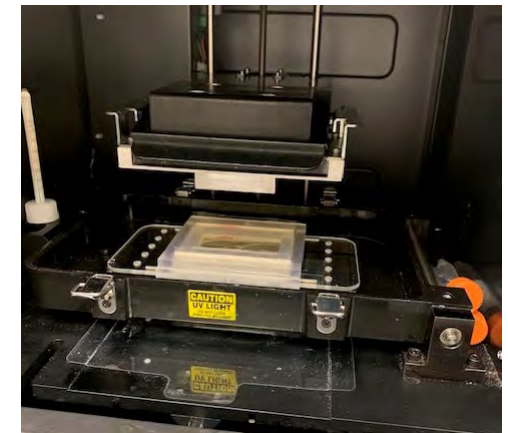
Lessons Learned



- 3D Bioprinting techniques and troubleshooting.
- Insights into Biotech advancements.
- Networking at WFIRM.
- Prepared students for WFIRM employment.
- Recognized the challenge and potential of Bioprinting.
- Valuable experience for future Bioprinting applications.



“This was a great opportunity to gain some fresh experience in the area of regenerative medicine research since a number of our biotechnology graduates work in this area upon graduation,” said Burrell. “I learned that bioprinting is very challenging, but it is one of the ways of making life better for mankind in the future.” She said that she also learned how to better prepare students for internship or employment at WFIRM and made new connections with the researchers at WFIRM



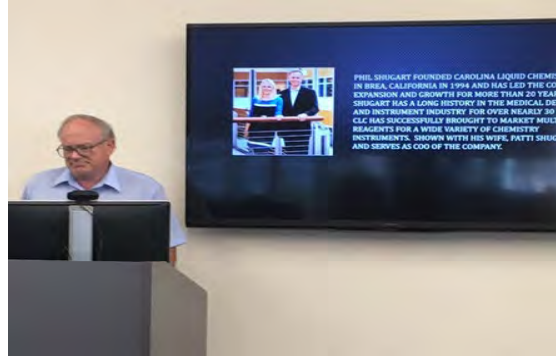
Dr. Daniel Moore - Southern Maine CC @ KeraNetics



Daniel Moore, Ph.D., professor and chair of biological sciences at Southern Maine Community College, spent two months as a BETA Skills at [KeraNetics Inc.](#) in Winston-Salem. KeraNetics has developed keratin-based solutions to support injured or compromised skin and other tissues

“The BETA Skills Summer Fellowship allowed me to experience some of what my students will be doing when they first enter the workforce,” said Moore. “Luke Burnett, the CEO at KeraNetics, was welcoming, and we had some conversations that I value greatly. The fellowship provided me an opportunity to learn how I can better prepare students to hit the ground running”

Dr. Andrew Vinal Wake Tech @ Carolina Liquid Chemistries



As part of the program, Andrew C. Vinal, Ph.D., an associate professor of biology at Wake Technical Community College, spent time at [Carolina Liquid Chemistries Corp.](#) in Greensboro. Carolina Liquid Chemistries provides chemical analyzers and instruments that are used for various types of chemistry and toxicology tests, such as urine screens.

“This valuable experience will allow me to share insights with students in terms of why certain types of skills are needed in business and the reasoning behind various processes,” Vinal said. “For example, I learned a great deal about the Code of Federal Regulations and how to write standard operating procedures — knowledge that I can pass onto my students”

Dr. Brenda Grubb Central Carolina CC @ Pfizer Sanford



Central Carolina Community College (CCCC) Biotechnology Instructor Brenda Grubb, PhD, conducted her fellowship at the [Pfizer Pharmaceutical Manufacturing Plant in Sanford](#), which employs many CCCC students. “I learned industry information by shadowing in technical operations with industry professionals who shared with me their roles in the company,” Grubb said. “I toured each area of the facility and had informative conversations with the technicians, scientists, managers and engineers”

Paola Adame of Pfizer said that hosting Grubb was a rewarding and enriching experience. “It challenged us to think critically about the necessary skills to be successful at Pfizer and how to create even more connections between local academia and our industry,”

Patricia Alfing of Davidson - Davie CC @ Javara Inc



Patricia Alfing, M.S., an associate professor at Davidson-Davie Community College, spent her fellowship at [Javara](#), an integrated research organization in Winston-Salem. Javara provides point of care clinical research access for patients by embedding staff and infrastructure into large healthcare organizations.

“I gained a new understanding of the current processes for clinical research studies,” said Alfing. “I had done clinical research in the past, but that was a while ago, and this fellowship provided an opportunity to update my knowledge. Also, I like to be able to share with students that there are other options besides being a floor nurse or clinic nurse.”



WFIRM-Dr. Gary Green

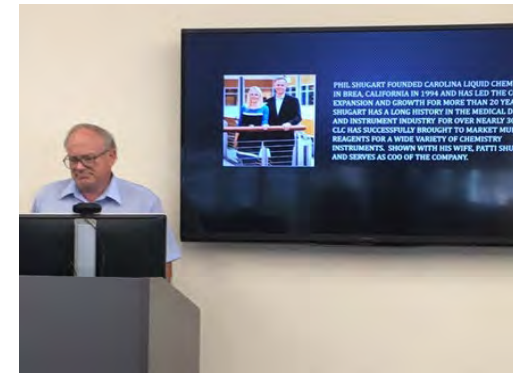
- Expansion of the collaboration between WFIRM and Forsyth Technical Community College since 2004
 - Tours and guest speakers
 - Work-based learning
 - Grant collaboration
 - Faculty development
- Importance of clear expectations of the Fellow role for meaningful, productive experience (not just job-shadowing), including pre-experience meeting
- WFIRM faculty/investigator buy-in
- Adequate time for administrative on-boarding processes – screenings, vaccinations (clinical facility), security, badging, etc.
- Recognition of Fellow and host organization/faculty

Wrap-Up



- Evaluation Comments

“All Fellows reported that their experiences were invaluable in helping them understand what skills and processes their students need to develop and follow to ensure that they are ready for a career in the biotechnology industry”



Dr. Amy Germuth, BETA Skills Evaluator

Articles & Video Presentations

- <https://www.ncbiotech.org/news/beta-fellowships-help-community-college-instructors-prepare-tomorrows-biotech-workforce>
- <https://short.forsythtech.edu/BETA-Skills-Summer2023>

Thanks to our partners, NCBW@ForsythTech & the NSF ATE for making this BETA Skills Industry Fellows Project Possible

www.biotechworkforce.org

Grant # 1800909

rread@forsythtech.edu

