

# National Center for the Biotechnology Workforce

## NCBW TIMELINE 2004 - 2023



at innovation  
quarter

October 2008 Agreement with the North Carolina Community College System established NCBW as one of seven BioNetwork centers.

BioNetwork supports the mission of the North Carolina Community College System aligning world class workforce training and education to biotechnology and life science industries.

Co-hosted 78 state educators at Washington Community College Summit 2006

Microsoft designates BCC as its second IT Showcase School in the nation 2006

Informatics Overview: A Program Building Resource for Community and Technical Colleges published 2006

At the IT Convergence Zone: A Rapid Development Model for Skill Standards and Curriculum published 2005

International Society of Pharmaceutical Engineers supports design, construction of 3500-sq-ft facility - opens to classes in November 2005 with more than \$1 million in state-of-the-art equipment

Materials Resource Program established for biotech companies to donate unused equipment for use in high schools

Biogen IdeC, Genentech recognize MCC's dedicated, immersive environment for training and support new faculty and remodel of facility

Selected as national model for community college - industry partnerships in biotechnology by the US Dept of Education

Indian Hills CC Biofuels, Agbio

Bio-fuel laboratory techniques and fundamental scientific processes developed for teaching

Pilot facility grows with Cargill donation of two new 80L fermenters

Bioreactors purchased through grant, began to be used for training, pilot projects needed by industry

Selected as national model for community college - industry partnerships in biotechnology by the US Dept of Education

Great Bay CC Biomaterials

First in the nation Biomaterials apprenticeship program begins 2005

Jan. 31, 2005 Northeast Biotechnology Conference, Dr. Sonia Walman

Sept. 2007 Harmonized Biopharmaceutical Manufacturing Industry Skill Standards at NCBW group meeting of industry and educators in Indianapolis

Forsyth Tech R&D

Wake Forest Institute of Regenerative Medicine recruits three students for internships and "hands on experience"

March, 2006 North Carolina Governor Michael Easley opens new technology building at Forsyth Tech, new biotechnology lab space, state-of-the-art equipment

NCBW National Center for the Biotechnology Workforce

June 19, 2005 NCBW presents at BIO 05 in Philadelphia, Dr. Sonia Walman co-chair with Elaine Johnson, NSF Bio-Link Chair

February, 2006 NCBW presents at symposium on - Workforce Innovation Bio-processing & Biomanufacturing Training in partnership with BioNetwork NC community college biotech training system. Focus for first Resource Line - Tracking Trends in Biotechnology Workforce newsletter.

March 1, 2007 Piedmont Triad BioNight recognizes NCBW - Russ Read: excellence in community service

May 6-9, 2007 NCBW presents "Faces of Success" at Community College Program at BIO 07 industry convention in Boston/07, tours of Biogen IdeC, Targetcept, Tengen, Wake Forest Institute in partnership with Alamance Community College and Bio-Link.

February 5-6, 2008 NCBW hosts nationwide DOL biotechnology - Workforce Innovation in Regional Economic Development - conference in Winston Salem.

October 17-19, 2007 Piedmont Triad Fly-In hosts 24 high school biotech teachers from around the country, tours of Biogen IdeC, Targetcept, Tengen, Wake Forest Institute in partnership with Alamance Community College and Bio-Link.

October 2009 National Center for the Biotechnology Workforce Launches SciTech Ideas Lecture Series

October 2009 Amy Greeson R. Ph., Producer, Healing Seekers "Medicine and Indigenous Healing Traditions"

November 2009 Dr. Ski Chilton, Founder, Gene Smart "Genetics, Diet and Chronic Disease"

February 2010 Dr. Kevin Conley, Forsyth Tech Nanotechnology Program "The World of Nanotechnology"

March 2010 Chris Sowers, Forsyth Tech Biotech Instructor "Why Conjure the North?"

April 2010 Judith and Dr. Tom Ginn, Forsyth Tech, "Health Issues in Rural Kenya"

September 2010 Dr. Frank Torti, Wake Forest Baptist Medical Center "Advancing Cancer Treatment through Technology Innovation"

October 2010 Dr. Mark Weinberg, McGill University "Twenty-Five Years of HIV Research Benefits on Laboratory Technology and Human Health"

January 2012 Dr. Tim Bertram, Tengen "Regenerative Medicine - Growing Today, Tomorrow and the Future" YouTube Link

February 2012 Dr. Steven B. Mizel, Wake Forest School of Medicine and Bruce Kayser, NCBI "Vaccines: Why and How?" YouTube Link

March 2012 Jerry Barker, CEO, Ocular Systems Inc. "An Eye Toward Innovation" YouTube Link

September 2012 Doug Drabble, Director of BioNetwork, "Career Success in Life Sciences" YouTube Link

October 2012 Charles W. Calkins, Attorney and Partner Kilpatrick, Townsend & Stockton, LLP, "The Changing Landscape of Intellectual Property Protection for Biotechnology Inventions" YouTube Link

February 2011 Dr. Frank Barker, Forsyth Tech "Environmental Health Science Curriculum Development in Liberia"

March 2011 Dr. J. Donald deBethizy, CEO, Targetcept "The Targetcept Story: From the Bench to the Clinic"

January 2011 Dr. Anthony Atala, Wake Forest Institute for Regenerative Medicine "Regenerative Medicine: New Approaches to Healthcare"

October 2008 Biotech Student Tracking program begins to keep graduates connected.

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October 2012 NCBW at Forsyth Tech awarded a Department of Labor grant of nearly \$15 million to unite twelve high-performing colleges into a Community College Consortium for Bioscience Credentials (c3bc) to work with 45 companies, employers and shareholders to develop core, industry-recognized skill sets in bioscience. High-growth industries required clearly defined skills to keep up with increasing global competition. Working together, bioscience "industry-recognized" credentials were created.

October 2013 Report from the Community College Program at global BIO convention in Chicago.

November 2013 TAA c3bc presentation to BIO Ohio on increasing need for workers in new, overlapping spheres of emerging technologies.

December 2013 Biosciences Talent Required - a lecture to the Triad Biotech Alliance on community college, workforce board and company partnerships working to meet industry employment needs

June 2014 Biosciences Industry Fellowship funded by NSF-ATE, selected teachers gathered for a program with visits to NC Biosciences enterprises, producing modules for use in classrooms. YouTube Link

March 2012 National Meeting with Manufacturing Institute, Bio-Link, NCB2, Medical Devices Educational Consortium, industry, college reps

March 2014 Forsyth Tech leads \$15M effort to build new biotech learning model. (Triad Business Journal report)

June 2014 Community College Program at BIO PowerPoint presentation by Russ Read: Bench to Bedside shows many jobs involved in biopharmaceutical development. PDF report available here: CCP@BIO 14

March 2015 presentation to NC Academy of Science at Wake Forest Biotech Place in Winston-Salem, NC on "Innovation in Research."

October 21-23, 2015 Biosciences Industry Fellows Program presented at NSF ATE Principal Investigator's Meeting in Washington, DC. YouTube Link

June 2016 c3bc Medical Device Skills Standards published. Click box for full report.

September 2020 Dr. Laura Kavanaugh, Senior Computational Biologist at Viz.ai and Melissa Smith, FT MRI Program & 2022 NC Faculty Member of the Year "Careers on the Cutting Edge: Medical Imaging Meets Artificial Intelligence"

April 2022 Dr. Steven R. Bauer of REMDO and WFIRM and former Chief of the Cellular and Tissue Therapy Branch (CTTB) at the FDA talks with Russ Read about developing evaluation protocols and policy in emerging areas of cellular therapies and regenerative medicine. YouTube Link

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September 2020 Dr. Mark Shafer, Executive Director and Clinical Lead, Antiviral at HengRui USA on "My PharmD Career in the Biotech Industry" YouTube Link

September 2021 Bernard Siegel, Executive Director of the Regenerative Medicine Foundation and Dr. Gary Green, Chief Workforce Development Officer at the Wake Forest Institute for Regenerative Medicine on "Regenerative Medicine and Workforce Development" YouTube Link

October 2020 Dr. Deanne Cranford-Wesley, Director of Cybersecurity, NC Central University & Adjunct Faculty, Forsyth Tech "CyberSecurity" YouTube Link

November 2020 Dr. Ronald Keeney, President, Pharmaceutical Medicine Associates, Inc. "Mentors and Mentoring" YouTube Link

January 2020 Dr. Jacob W. Surratt, Provost and Chief Academic Officer, Forsyth Tech Community College on "Career Opportunities and the Interdisciplinary Science of Kinesiology" YouTube Link

December 2021 Aden Dauchess and Dhani Bischoff, Carolina Biological Supply Company on "Learning Bacterial Transformation with the Carolina Biotechnology Simulator" YouTube Link

January 2022 Dr. Tracy Criswell Ph.D., Associate Professor, Wake Forest Institute for Regenerative Medicine "Tissue Engineering and Regenerative Medicine: What's Next? It, How Does it Work, and What's New?" YouTube Link

February 2022 Robert Elliot, Founder of the Veteran's Farm of NC on "Nanobiotechnology and the Future of Farming" YouTube Link

April 2020 Dr. Amy Greeson, Founder and CEO, Natural Discoveries Inc. "Pharmacy and Natural Healing" YouTube Link

April 2020 Dr. Jeff M. Sands, MD, Professor of Medicine and Physiology Emory University "Physiological Insights into Novel Therapies for Nephrogenic Diabetes Insipidus" YouTube Link

February 2016 Roland Johnson, Founder and CEO of Piedmont Pharmaceuticals & Animal Health "An Innovator in Animal and Human Health" YouTube Link

March 2016 Dr. Travis Russell, Professor, Forsyth Tech "A Visit To Chernobyl - Past, Present & Future" YouTube Link

September 2016 Patti Shugart, COO, Carolina Liquid Chemicals Corporation "Update on Carolina Liquid Chemicals" YouTube Link

October 2016 Dr. Ski Chilton, Professor, Wake Forest School of Medicine "Inflammation Nation & The Rewired Brain" YouTube Link

November 2016 Barry Slowey, President and Vihur Surti, Cook Medical Endoscopy Division "Medical Device Development" YouTube Link

December 2016 Alan Beard, Chair, Forsyth Tech Biotech Department "Retirement and Antibodies" YouTube Link

January 2017 Kim Westmoreland, KeraNetics "Conversations of a Serial Entrepreneur" YouTube Link

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April 2018 Dr. Rohan A. Shrivastava, Associate Professor & Faculty Scholar, Fitts Department of Industrial & Systems Engineering, NCSU "3D Bioprinting: Materials + Manufacturing + Medicine." YouTube Link

September 2018 Ken Lane, experienced computer software engineer "How To Achieve The Right Balance Between Humans and Machines To Optimize Outcomes" YouTube Link

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January 2013 The Trade Adjustment Assistance Community College Career Training (TAACCTT) program c3bc launched at Biotech Place in Winston-Salem. Goals - funded by the DOL grant - are to: improve workplace training through recruitment testing, aptitude assessment, course redesigns, better outreach and more relevant, introduce portable, industry-recognized credentials into training, build community college capacity for education that meets employer needs; add infrastructure and build internships. Twelve partners are concentrated into four hubs:

Learning Technologies Hub  
Accelerate completion time through improved prior learning assessment, removal of institutional barriers and new, technology enhanced instructional materials

Forsyth Technical  
Hub lead institution, pilots a modular learning lab, with assessments conducted and duplicated nationally.

Biomanufacturing Hub  
Develop new biomanufacturing courses, credentials and teaching materials in partnership with industry.

Montgomery County  
Hub lead institution, also home of NSF biomanufacturing center, leading campaign to stack credentials and access local career paths.

Medical Devices Hub  
New skill standards; stackable, latticed credentials will help trade-impacted workers get high-wage, high-skill jobs

Ivy Tech  
Hub lead institution coordinates Medical Device companies, trade organizations, community colleges and more stakeholders to develop skill set matrices in five functional areas.

Lab Skills Hub  
Develop new courses and credentials in the Biosciences with revised laboratory skills standards

City College of San Francisco  
Hub lead institution, also home of the NSF national Bio-Link center, addresses lack of industry-recognized credentials, works to harmonize skill standards

Madison Area  
Hub lead institution, also home of the NSF national Bio-Link center, addresses lack of industry-recognized credentials, works to harmonize skill standards

Austin  
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Alamance  
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Los Angeles Valley  
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St. Petersburg  
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Salt Lake City  
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March 26-28, 2014 DOL TAACCTT c3bc National Meeting:

Consensus by hubs reached in Skills Standards session to identify, select and draft key activities of core critical work functions common to all bioscience industries into a single document. Bio-Link has a page on skills standard work done to date - "Finding alignment"

Gardner Carrick of NAM referred to work in skills and manufacturing in other industries at the Manufacturing Skills Standards Council web site.

Other topics included: innovative ways to assess prior learning; strategies for Workforce Investment Boards; plus a look at the library of modular teaching "granules" being built to share through the new online NTER system.

Sept 2014 Tech Council Meeting a PowerPoint presentation by Russ Read & Michael Ayers addresses talents required for biotech jobs, including a video about alumni. YouTube Link

October 12-15 2015 c3bc (TAACCTT) Annual Meeting, dedicated to common standards and increased training, held at Forsyth Tech.

June 2016 Core Skills Standards for Bioscience Technicians published by c3bc. Click box for full report.

New BETA Skills partnerships with Advanced Regenerative Manufacturing Institute (ARMI) and RegenMed Development Organization (RemDO)

April 2019 Dr. Janet Spriggs, with 22 years of service in the North Carolina Community College System, becomes president of Forsyth Tech, focusing on student success in college and in the labor market.

June 2019 The 5th annual Biosciences Industry Fellowship Project (BIFP) cohort gathers eleven exemplary instructors from across the U.S. for hands-on experiences that connect teaching to skills. YouTube Link

August 2019 The National Center for the Biotechnology at Forsyth Tech is awarded \$535,297 as part of a \$7.5 million National Science Foundation grant led by Austin Community College for InnovATEBIO, a new national biotechnology education center and network that will address the rapidly growing need for highly skilled technicians in biotechnology

November 2019 The North Carolina Biotechnology Center - the first state-funded effort to grow a state's life science strengths in the U.S. - celebrated its 35th Anniversary on November 5th, 2019

November 2019 Impact Magazine recognizes six years of success for the Biosciences Industry Fellows Project and the role of more than 30 industry, academic, and institutional partners who have provided cohorts with hands-on, on-site job experiences.

November 2020 NCBW develops BETA GMP course in cooperation with the Capstone Center of Bio Network.

December 2020 Advisory Board members of the National Center for Biotechnology Workforce (NCBW), the Analytical Molecular Skills Development Lab (AMSLD), and the Forsyth Tech Biotechnology Program hold a joint board meeting via ZOOM.

April 2021 NCBW develops new BETA NanoBio course for colleges and STEM instructors.

May 2021 NSF Bioeconomy Distinguished Lecture Series "Scoping and Educating the Dynamic Biotech Workforce" features InnovATEBIO Principal Investigators Dr. Linnea Fletcher, Russ Read, and Dr. Thomas Tubon.

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August 2016 Impact Magazine charts the journey and accomplishments of the c3bc TAACCTT grant, which grew from 12 colleges to 172 industry, academic and workforce partners across the U.S.

NCBW Skills Development Lab provides specialized tools to sharpen skills with classes for Forsyth Tech students, biotech employees, plus reputable space.

June 2017 Impact Magazine focuses on the experiences of the first four Biosciences Industrial Fellowship Project cohorts.

January 2018 NCBW named one of ten finalists for prestigious Bellwether Award at Community College Futures Assembly.

May 2018 Natural Discoveries, a drug discovery/novel compound discovery company, joins the National Center for Biotechnology Workforce (NCBW) lab as its first laboratory tenant.

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