

NCBW TIMELINE

April 2019 Click dashed-line entries for more info

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

Bellevue CC Informatics

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

Program featured in the industry journal: *BIO-IT World*

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

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

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

MiraCosta Bioprocessing

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

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

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

Indian Hills CC Biofuels, Agbio

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

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

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

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



NCBW hosts President Obama's Visit to Forsyth Tech

December 2010 Visiting Forsyth Tech, President Barack Obama praised North Carolina's leadership in renewing American scientific education, training and skilled workforce superiority.

April 2010 MetLife recognizes NCBW - Forsyth Tech partnership as finalist in National Community College Excellence competition, with \$20,000 award.

March 2006 NCBW team presents at League for Innovations conference in Atlanta

April 9, 2006 Community College Program at BIO 2006 in Chicago

July 11-13, 2006 NCBW team presents at DOL Workforce Innovations Conference, Anaheim. Honorable Mention award to NCBW.

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. [You Tube Link](#)

March 2012 National Meeting with Manufacturing Institute, Bio-Link, NBC2, Medical Devices Educational Consortium, industry, college reps

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

January 2013 The Trade Adjustment Assistance Community College Career Training (TAACCCT) 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 retention; 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:

<h3>Learning Technologies Hub</h3> <p>Accelerate completion time through improved prior learning assessment, removal of institutional barriers and new, technology enhanced instructional materials</p> <p>Forsyth Technical Hub lead institution, pilots a modular learning lab, with assessments conducted and duplicated nationally.</p> <p>Rowan Cabarrus</p> <p>Alamance</p>	<h3>Lab Skills Hub</h3> <p>Develop new courses and credentials in the Biosciences with revised laboratory skills standards</p> <p>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</p> <p>Madison Area</p> <p>Austin</p>
<h3>Biomanufacturing Hub</h3> <p>Develop new biomanufacturing courses, credentials and teaching materials in partnership with industry.</p> <p>Montgomery County Hub lead institution, also home of NSF biomanufacturing center NBC2, leading campaign to stack credentials and access local career paths.</p> <p>Bucks County</p> <p>Los Angeles Valley</p>	<h3>Medical Devices Hub</h3> <p>New skill standards; stackable, latticed credentials will help trade-impacted workers get high-wage, high-skill jobs</p> <p>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.</p> <p>Salt Lake City</p> <p>St. Petersburg</p>

March 26-28, 2014 DOL TAACCCT 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!"

February 2015 c3bc national meeting in Winston-Salem NC to grow bioscience training for Trade Adjustment Assistance displaced workers and others.

April 2015 c3bc Medical Device Hub national meeting to develop core skills for nationally-recognized, standard education pathways.

June 2015 Community College Program at BIO in Philadelphia including "Faces of Success." [CCP@BIO 15 \(PDF report\)](#)

September 2014 Tech Council Meeting a PowerPoint presentation by Russ Read & Michael Ayers addresses talents required for biotech jobs, including a video about alumni: [You Tube Link](#)

October 12-15 2015 c3bc (TAACCCT) 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.

December 2014 presentation to the NCBC Piedmont Triad Biotechnology Advisory Committee, including a Learning Skills Lab video: [You Tube Link](#)

February 2015 new IMPACT magazine focuses on c3bc program Deliverables: upgrades in equipment, training capacity and standards in core skills working with partners in all hubs across the nation.

March 2016 c3bc National Advisory Council Meeting in Research Triangle Park in North Carolina - Building the Manufacturing Talent Pipeline"

June 2016 Biosciences Industry Fellowship NSF-ATE teachers program with visits to NC Biosciences enterprises.

June 2016 c3bc National Meeting June 4-5, prior to June 6 presentation at the BIO International Convention in San Francisco.

New partnership with NIIMBL - the National Institute for Innovation in Manufacturing Biopharmaceuticals. [www.NIIMBL.us](#)

June 2018 The 5th annual Bioscience Industrial Fellowship Project (BIFP) cohort gathers eleven exemplary instructors from across the U.S. for hands-on experiences that connect teaching to skills. [You Tube Link](#)

November 2015 new SciTech Ideas in Action publication documents the first seven years of the Forsyth Tech professional lecture series with links to YouTube videos and other resources.

January 2016 Russ Read, NCBW Executive Director, gave this presentation at the 103 Indian Science Congress at the University of Mysore, India

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August 2016 Impact Magazine charts the journey and accomplishments of the c3bc TAACCCT 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 rentable space.

June 2017 Bioscience Industrial Fellowship Project (BIFP) cohort presentations. [You Tube Link](#)

June 2017 Impact Magazine focuses on the experiences of the first four Bioscience 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.

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

<p>November 28-29, 2018 The BETA Skills National Advisory Council, representing industry, education, and workforce, meets in Winston-Salem. Led by NCBW, the BETA Skills project will work through four nodes to identify BETA skills and to build regional and national ecosystems.</p>		<p>National Center for the Biotechnology Workforce NSF-ATE DUE Program Grant #1800909</p>	
<p>NORTH CAROLINA</p> <p>Russ Read Principal Investigator NCBW at Forsyth Tech Community College, Winston-Salem, NC</p>	<p>CALIFORNIA</p> <p>Kathy Bakht, EdD Co-Principal Investigator College of the Canyons Santa Clarita, CA</p>		
<p>INDIANA</p> <p>Sengyong Lee, PhD Co-Principal Investigator Ivy Tech Community College Bloomington IN</p>	<p>MINNESOTA</p> <p>Deb Newberry MSc Co-Principal Investigator Newberry Technology Associates Burnsville, MN</p>		

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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 it's 35th Anniversary on November 5th, 2019

June 2020 IMPACT Magazine tracks the development of specialized BETA skill sets, regional ecosystems and new courses that technicians will need to fulfill evolving roles in the rapidly changing and convergent biomedical device industry.

June 2020 The first version of BETA skill sets is published in Impact Magazine - nine key technical areas with forty-plus related performance skill indicators, and fourteen critical soft skills.

July 2020 Forsyth Tech President Janet N. Spriggs hosts U.S. Secretary of Labor Eugene Scalia and U.S. Representative Virginia Foxx who visit the National Center for Biotechnology Workforce, the SBDC and the Analytical & Molecular Skills Development Lab

August 2020 NCBW receives a supplemental BETA Skills grant from the NSF to focus on Cyberbioscience. The project will develop and provide professional development opportunities for instructors, create curriculum based on cybersecurity requirements for medical device good manufacturing practices (GMP), and update current skill standards to incorporate cyberbio requirements.

September 2020 BETA Skills National Advisory Council, representing industry, education, workforce and supporting partners, meets virtually on September 17th for updates and insights on activities to review new BETA skill sets.

September 2020 Carolina Knowledge Center launches the "Biotech Careers Virtual Event" - a series of interactive, expert-led professional development sessions for teachers to help them teach concepts and skills involved with topics like genetic testing, DNA analysis, COVID-19 testing, genomic research, RNA sequencing, and vaccine development. [Available Here](#)

October 2020 Russ Read, NCBW Executive Director and Dr. Jason Gagliano, Coordinator for NCBW's Analytical & Molecular Skills Development Lab present virtually at the virtual NSF-ATE PI Conference: "Skills for Biomedical Emerging Technology Application (BETA)" and "Using High-Resolution Mass Spectrometry to Develop Advanced Laboratory Skills in Collaboration with Industry"



Great Bay CC Biomanufacturing
First in the nation Biomanufacturing Apprenticeship program begins 2005

Jan. 31, 2005 Northeast Biopharmaceutical Manufacturing Industry Skill Standards finalized in consensus with industry

First BIOMAN 06 national conference organized by Dr. Sonia Wallman July 24-28, 2006

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

New Recombinant DNA Technology course developed for R&D labs experimenting in nucleic acids, cloning, stem cell research

NCBW National Center for the Biotechnology Workforce

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

June 28, 2004 President's High-Growth Job Training Initiative grant for Forsyth Technical CC in partnership with four other community colleges around the nation develop the National Center for the Biotechnology Workforce (NCBW)

February, 2006 NCBW presents at symposium on 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

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

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

September 2013 Dr. Eric Tomlinson, Chief Innovation Officer at Wake Forest Baptist Medical Center and President of Wake Forest University's Innovation Quarter, shared innovations and collaborations in medical devices, protein drugs and mobile apps.

March 2013 Dr. Christy Shaffer of Hatteras Discovery spoke about "My Journey as an Entrepreneurial Scientist, CEO and Investor."

October 2014 Dr. David McNelis UNC Chapel Hill on renewable energy. [You Tube Link](#)

October 2014 Gwyn F. Riddick, Strategic Development and Agricultural Biotechnology Consultant for the NC Biotechnology Center [You Tube Link](#)

2008 final report on first three years of NCBW (pdf)

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.

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

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October 2014 Celeste Carter, National Science Foundation Program Director, spoke on funding opportunities for biotech training.

September 2015 Barbara A. Pisani, D.O.; Professor of Cardiology, Wake Forest Baptist Medical Center [You Tube Link](#)

December 2013 A special edition of Forsyth Tech's biotech IMPACT magazine features an illustrated look at the nationwide programs of the TAA c3bc.

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. Plus 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. [You Tube Link](#)

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

May 2018 Skills for Biomedical Emerging Technology Applications (BETA) NSF grant awarded to NCBW to define workforce skills technicians will need for manufacturing jobs in high-growth intersections of biomedical devices and tissue engineering. "Employers need technician-specialists who understand more," says Russ Read, principal investigator. "Working together, we will define these skills."

December 2018 Forsyth Tech President Gary Green retires. Across 17 years he added new curricula, led more than \$100 million in facilities expansions and raised more than \$33 million in significant capital campaigns. Dr. Green led the school to evolve into a national model for biotechnology, cybersecurity, and motorsports technology education. With his goal to align programs with changing economies, the college is achieving high student success and completion rates. Individuals gain educational opportunities to enhance their lives. Employers and industries in the region gain a skilled work force they can count on thanks to excellent training programs Dr. Green helped to create.

January 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.

April 2019 NCBIO, NCBW and Durham Technical Community College convened twenty-three biotech companies, educators and workforce organizations to identify critical BETA skill sets for technicians working at the interface of regenerative medicine and biomedical devices.

June 2019 The sixth Bioscience Industry Fellows (BIFP) professional development cohort of 11 college and advanced high school program instructors from the U.S., Jamaica, and Trinidad and Tobago. [You Tube Link](#)

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

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

November 2012 Adesanmi Ojo, M.D. "From Forsyth Tech to Medical School and Beyond"

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October 2015 Dr. Norma V. Quiñones, Learning Consultant for Global Quality Training and Development at Biogen [You Tube Link](#)

November 2014 Biosciences Industry Fellowship Ten participants from six states, funded by an NSF-ATE award, visited NC Bioscience college, labs and companies, reporting new ways to teach.

January 2015 Ana S. Iltis, Ph.D. Director, Center for Bioethics, Health and Society spoke on "Identifying, Managing and Communicating Research"

February 2015 Anthony Atala M.D., Director, Wake Forest Institute for Regenerative Medicine in conjunction with the 2015 National c3bc Meeting, [You Tube Link](#)

March 2015 Jennifer Bryant presented "CSI In The Real World." [You Tube Link](#)

September 2015 Barbara A. Pisani, D.O.; Professor of Cardiology, Wake Forest Baptist Medical Center [You Tube Link](#)

October 2015 Dr. Norma V. Quiñones, Learning Consultant for Global Quality Training and Development at Biogen [You Tube Link](#)

January 2017 Kim Westmoreland, KeraNetics, "Confessions of a Serial Entrepreneur"

February 2017 Dr. Gregory Kucera and Dr. Timothy Pardee, "KPC-34 combating a DNA damaging Agent with a Targeted Therapy"

March 2017 Dr. Amy Greeson, "Exploring the world for novel medicinal compounds and for education"

September 2017 Aaron Larazus, CEO, EncepHeal Therapeutics help "Break the cycle of addiction with Next Generation Neurotherapeutics." [You Tube Link](#)

October 2017 Home to next-generation DNA sequencing, the Analytical and Molecular Training Lab at Innovation Quarter helps students and high-tech clients advancing product development. Jason Gagliano & Malaysia Christian spoke on different, innovative ways the lab is being used today. [You Tube Link](#)

January 2018 Laura Deming, Director, Longevity Fund, "Using Biological Research to Reduce or Reverse the Effects of Aging and Increase Longevity."

March 2018 "The Physical and Chemical Properties of Smoke" with Norman Fraley, co-lead faculty in Science of Sustainability at Wake Forest University. [You Tube Link](#)

February 2019 Jennifer Byrne Javara Research on "A View of the Clinical Trials Enterprise in the Twenty First Century" [You Tube Link](#)

March 2019 Dr. Simon Selwood of SoBran Bioscience on: "Consumer Medicine - Democratizing Health Care Decisions," how genomic medicine personalizes treatment and increases prevention, along with diagnostic, ethical and other issues. [You Tube Link](#)

September 2019 Dr. Tracy Criswell, Assistant Professor, Wake Forest School of Medicine on "Age and Sex: Implications for Regenerative Medicine Applications" [You Tube Link](#)

December 2019 Dr. Bryant M. Moore, Director of Strategic Partnerships, UNC Office of Technology Commercialization on "The Necessary Interdependency Between Basic Research and Novel Healthcare Products" [You Tube Link](#)

January 2020 Dr. Daniel J. C. Herr, Professor, Nanoscience Department The Joint School of Nanoscience and Nanoengineering on "Convergence in the Era of Intelligent and Cognitive Assistants" [You Tube Link](#)

March 2020 Donald McCoy, STEM education consultant, Donald McCoy and Associates on "Stepping into the Biotech Future with Augmented and Virtual Reality" [You Tube Link](#)

April 2019 Dr. Hariom Yadav, Molecular Medicine, Wake Forest School of Medicine on "Gut Microbiome: A Goldmine of Therapeutics and Biomarkers of Aging Related Metabolic Disorders" to prevent, treat and/or cure health ailments. [You Tube Link](#)

January 2019 Bob Haack MBA on "How Climate Change Affects the Planet's Finite Water Resources and the Need for New Technologies to Improve the Aging Water Infrastructure" [You Tube Link](#)

September 2018 Ken Lane, experienced computer software expert spoke on "How To Achieve The Right Balance Between Humans and Machines To Optimize Outcomes" [You Tube Link](#)

November 2015 Doug Edgeton, President & CEO, NC Biotechnology Center presented "Healing, Fueling, and Feeding the World: The Triad's Role." [You Tube Link](#)

January 2016 NCBW Executive Director Russ Read, invited to the 103rd Indian Science Congress at Mysore University, spoke on "A Passage To Biotech in India." His visit included an address by the Prime Minister of India and a welcome reception for his Bioscience Workforce presentation.

February 2016 Roland Johnson, Founder and CEO of Piedmont Pharmaceuticals & Animal Health, presented "An Innovator in Animal and Human Health." [You Tube Link](#)

March 2016 Dr. Travis Russell, Professor, ForsythTech, "A Visit To Chernobyl - Past, Present & Future." [You Tube Link](#)

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