

# **Women in STEM**

## **North Carolina Community Colleges**

*Dr. Lisa Eads*

# NCCCS & Women in STEM Creating Success!

- The NC Community College System has been a leader in STEM programs for women for many years.
- NCCCS Women in STEM Program Enrollment Snapshots:
  - Biological and Chemical Technologies Programs – **65% Female**
  - Health Science Programs – **88% Female**
  - Accounting/Finance Programs – **73% Female**
  - STEM Transfer program enrollment – **55% Female**

# NCCCS STEM Programs & Partnerships

## Transfer Programs

### STEM Transfer Degree Programs and Articulation Agreements

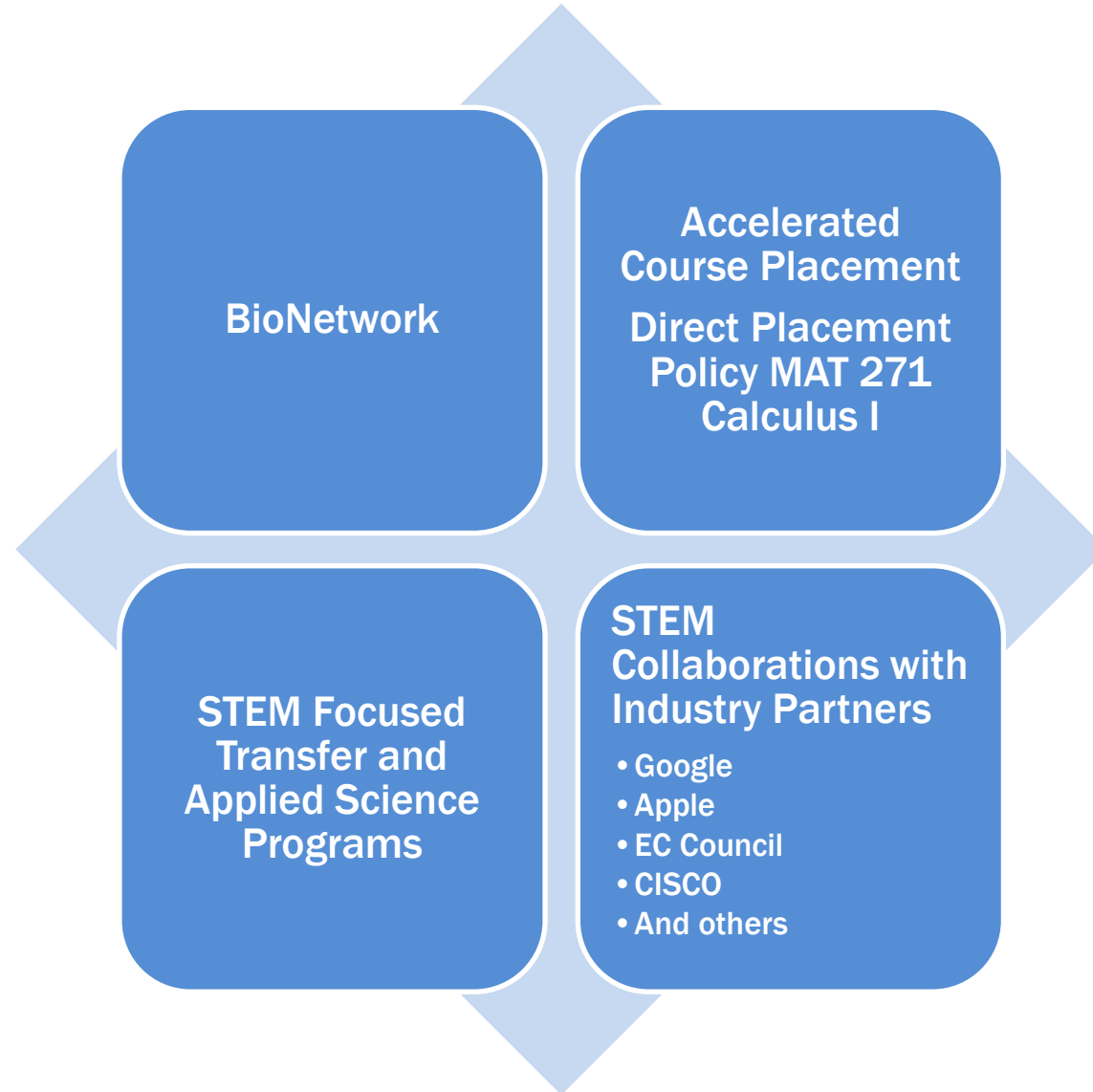
- Associate in Science (Comprehensive Articulation Agreement and Independent Comprehensive Articulation Agreement)
- Associate in Engineering (Uniform Articulation Agreement)
- Associate in General Education – Nursing (RN to BSN Uniform 3+1 Articulation Agreement)

## Applied Science Programs

### STEM Associate in Applied Science Programs and Articulation Agreements

- High School to Community College Career and Technical Education Articulation Agreement (Statewide Agreement and Local Agreements)
- Bi-Lateral AAS Articulation Agreements (public and private colleges and universities)
- STEM AAS Programs
  - Agriculture and Natural Resources Technologies
  - Biological and Chemical Technologies
  - Commercial and Artistic Production Technologies
  - Information Technology
  - Engineering Technologies
  - Health Sciences

# NC Community College Systemwide STEM Initiative Examples



# System Initiative - NCCCS BioNetwork

- Provides high-quality economic and workforce development for the biotechnology and life science industries across North Carolina through education, training, and laboratory resources
- Also supports the future biotechnology and life science workforce through teacher training and outreach
- [BioNetwork | NC Community Colleges](#)



## NC BioBetter Project

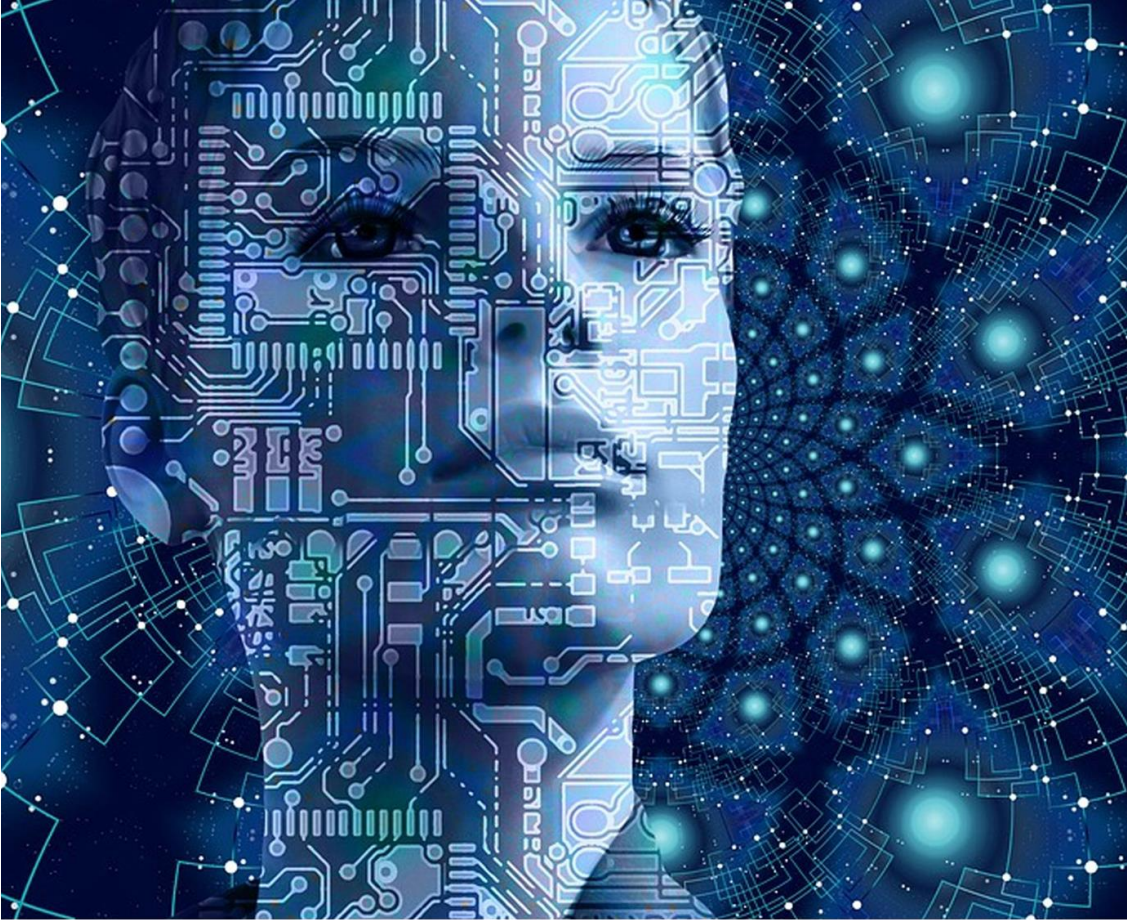
- **16.4 million in federal funding over three years**
- **Includes 10 community colleges and our BioNetwork division**
- **Funding to be used to strengthen North Carolina's life sciences manufacturing cluster by expanding, connecting and promoting training and career opportunities to underserved, distressed, and rural communities**



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## NCCCS Enrollment Trends

### Fall 2019 – Fall 2021



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- **Biotechnology – 39% increase**
- **Cancer Information Management – 81% increase**
- **Cyber Crime Technology – 62% increase**
- **Cytotechnology – 25% increase**
- **Electroneurodiagnostic Technology – 144% increase**
- **Geomatics Technology – 71% increase**
- **Histotechnology – 46% increase**
- **Medical Sonography – 110% increase**
- **Sustainability Technologies – 47% increase**

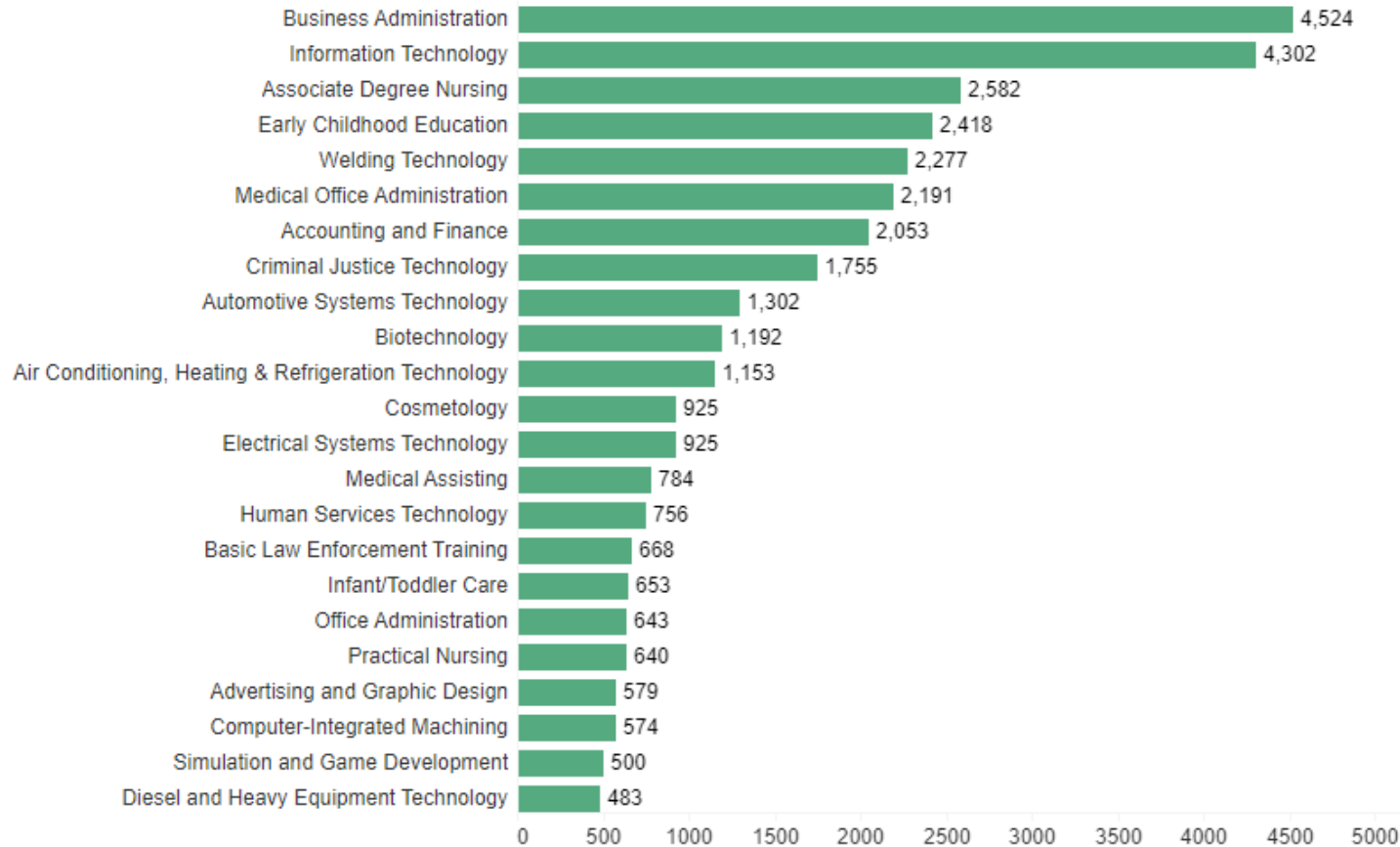
# NCCCS STEM Program Credentials Awarded 21-22

## CTE Curriculum Credentials Awarded by Program of Study

NCCCS CTE Programs of Study by Number of Credentials Awarded in IPEDS Year 21-22

Graph Displaying: **Total Credentials**

Depending on number of rows, graph may scroll down



Changes to the filters below will affect this page only. To choose a different college, use the "Overview" tab.

College

NCCCS

IPEDS Year

21-22

Show Graph By:

Total Credentials

CTE

Note: Counts reported are counts of credentials awarded in a particular year and are not reflective of graduation rates.

Source: Grad Extract

- Information Technology
- Associate Degree Nursing
- Accounting and Finance
- Biotechnology
- Electrical Systems Technology
- Practical Nursing
- Computer Integrated Machining
- Simulation and Game Development



# STEM Spotlight – START Internship Program Wake Technical Community College



Fall 2022 START Cohort Orientation at the Scott Northern Wake Campus

- **START (STEM Academic Research & Training) Internship Program**
  - Purpose is to diversify the STEM workforce by increasing the success and retention of marginalized students in STEM fields
  - Provides mentored, apprentice-style experiences for students WTCC campuses
  - START projects cover all areas of STEM including biology, geology, math, physics, 3D printing, engineering, and science communication
  - START is unique for an undergraduate research program
    - there is no GPA requirement and moreover, seeks “C” or “D” students, with the belief that the mentored, hands-on experience will give students the confidence to excel in the classroom

# STEM Spotlight – START Internship Program Wake Technical Community College

## History of START

- **START in 2016, 338 individual students have been served**
- **199 (59%) were female students**
- **430 Internships have been completed (some students completed more than one semester as an intern)**
- **31 faculty mentors have participated in START, of those 21 (68%) are female**

## Funding

- Grant awarded in 2021 - National Science Foundation under the Advancing Innovation and Impact in Undergraduate STEM Education at two-year institutions of higher education
- **1.4 million/ 5-year grant**
  - Program evaluation (UNCG SERVE Center)
  - Student travel
  - Student and mentor compensation
  - Project dissemination (student presentations at in state and out of state conference events)
  - A small course/time release for 4 WTCC personnel

## Student & Mentor Compensation

- 50 students are compensated for 60 hours over the course of a semester
  - 40 hours of undergraduate research
  - 15 hours of professional training
  - 5 hours of community building
- Rate of pay is \$15 per hour
- Before the grant allowed mentor compensation, **faculty mentors gave over 7500 hours!**

## Program Outcomes

- **Pre-grant**
  - 42% of START Interns have graduated from Wake Tech Community College (as compared to 34% of Wake Tech students). **51% of the START Interns that have graduated were female**
  - 45% of START Interns have transferred to 4-yr institutions (as compared to 28% of Wake Tech students). **50% of the START Interns that have transferred were female**
  - 56% of START Interns have either transferred or graduated. **50% of the START interns that have transferred or graduated were female**
- Post-Grant - data forthcoming

# STEM Spotlight – Wilkes Community College

The Issue - there were fewer and fewer females in their IT program, and beyond that there were virtually no recent female graduates from their AAS program.

This theme was certainly a departure from 15 or 20 years ago when females made up nearly half of the WCC IT program enrollment.

Working with Achieving the Dream, Wilkes CC reviewed data regarding 1<sup>st</sup> year progression in math courses and noted females had strong performance, particularly Hispanic females.

Decided to pursue Perkins funding through the NCCCS to support training through the National Institute for Women in Technology, Trades and Sciences and began gathering data for a Comprehensive Local Needs Assessment for the Information Technology program.

This resulted in our first-ever High Tech Girls Day event on March 22, 2022. We structured the event to contain two hands-on experiences– one revolving around networking and the other around software development.

The next recruitment event in our implementation plan was a Women in Cyber Security virtual meet and greet which was held June 14, 2022. We hosted a panel of female Cybersecurity professionals for Q & A, including a recent graduate from our Information Technology program.



High Tech Girls event at Wilkes Community College – March 22, 2022

# STEM Spotlight – Women in STEM Virtual Conference Vance Granville Community College



Dr. Virginia Tickles, retired Aerospace Engineer with NASA

- VGCC’s Initiative on Equity for Women of Color (V.I.E.W.) presented a Women in STEM Virtual Summit on March 23, 2022 as a part of Women’s History Month celebration
- The event focused on the history, successes, challenges, and preparation of and for women interested in STEM careers
- Dr. Virginia Tickles, retired Aerospace Engineer with the NASA Marshall Space Flight Center was the keynote speaker
- Other presenters for the virtual conference included:
  - Dr. Natasha Thompson – History Instructor, Vance-Granville Community College
  - Dr. Jamila Simpson – Assistant Dean for Inclusive Excellence, College of Science, NC State University
  - Lisa Fedele – Director, Global Creative Operations Lead for the Hatch, Cisco Systems
  - Whitney Holmes – Health Equity Coordinator, Franklin County Health Department
  - Stephanie Martinez – CEO, PowerGPU, LLC

# Women in STEM

## Looking towards the Future...



## For more information

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