North Carolina Women in STEM

House Select Committee on Advancing Women in STEM
October 12, 2022
Labor & Economic Analysis Division

What LEAD Does

- Data Collection & Production (incl. Unemployment Rates)
- Industry Establishments & Jobs
- Occupational Employment & Wages
- Big Data Analysis
- Program Evaluation
- Common Follow-up System (NCTOWER.com)

Labor Market Data Production

- Economic & Policy Analysis
- Employment Projections
- Star Jobs
- LMI Tools & Publications
- Economic Development Reports (e.g. County Tier Designations)

Big Data Analysis & Research

- Publications & Websites
- Online & Print Publications
- Dashboards (Analytics.NCcommerce.com)
- Data Access Tools (D4.NCcommerce.com, NCareers.org)

NC DEPARTMENT OF COMMERCES LABOR & ECONOMIC ANALYSIS
Workforce needs for overcoming labor gaps

Workers in general need to be:

**Prepared** to work successfully in STEM
- Education/credentials
- Skills
- Professional aptitude/competence

**Able** to work in STEM
- Current & future job openings
- Livable wage, childcare, etc.
- Limited barriers

**Wanting** to work in STEM
- Good, fair work opportunities
- Viable career paths
- Aware of jobs & occupations
Defining STEM

STEM Occupations

• Focus on workers – work in all industries tech or non-tech related
• Defined by U.S. Bureau of Labor Statistics (BLS)
  • Excludes Healthcare Occupations

STEM Industry

• Focus is on employers and work production
• No universal definition – but LEAD has defined this as
  • Focusing on Services – Software development, R&D, Computer systems, Telecommunications, Architecture/Engineering
STEM Occupational Employment in NC

• **300,000 jobs** in STEM in 2021 (11th most in U.S.)
  - 6.8% of all jobs (16th highest proportion of jobs among states)

• Median wage **$94,810** (13th highest in U.S.)
  - Median wage of Non-STEM **$37,680** (16th lowest in U.S.)

• Women account for **28%** of STEM jobs* (excluding teaching occupations)
  - Women account for **half** of all NC jobs

Sources: 2021 data U.S. Bureau of Labor Statistics, OEWS & Projections; *LightCast
a workforce

Prepared to Work in STEM
What preparation is needed to work in STEM?

82% of STEM jobs require at least a Bachelor's Degree for entry

Top skills important to STEM occupations
- Science
- Programming
- Operations Analysis
- Technology Design
- Mathematics
- Systems Analysis
- Systems Evaluation
- Writing
- Complex Problem Solving
- Reading Comprehension

Source: NC Department of Commerce, LEAD analysis of O*NET data; BLS Min Educational Attainment & OEWS
**STEM Industry Hiring Difficulties**

Results from the 2021 NC Employer Needs Survey

- **71%** reported difficulties in 2021
  - Less than all employers overall (**81%**)

- Greater variety of reasons for difficulties hiring entry-level

“Organizations value general skills more than specific ones because they can get them up to speed when they’re in their role – although it’s important to bear in mind they face barriers to training.”

– SAS How to Solve the Data Science Skills Shortage Report, 2022

### Reasons for Entry-Level Hiring Difficulty

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Few Applicants</td>
<td>78%</td>
</tr>
<tr>
<td>Employability Skills</td>
<td>61%</td>
</tr>
<tr>
<td>Low Pay</td>
<td>51%</td>
</tr>
<tr>
<td>Lack of Experience</td>
<td>45%</td>
</tr>
<tr>
<td>Lack of Soft Skills</td>
<td>44%</td>
</tr>
<tr>
<td>Lack of Technical Skills</td>
<td>41%</td>
</tr>
<tr>
<td>Lack of Education</td>
<td>41%</td>
</tr>
</tbody>
</table>

Blue bars denote responses significantly greater than all employers
a workforce

Able & Wanting to Work in STEM
### NC STEM Occupations with Highest Projected Rate of Job Growth through 2028

<table>
<thead>
<tr>
<th>Occupations with</th>
<th>Annual % Growth*</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Security Analysts</td>
<td>3.1%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Statisticians</td>
<td>3.1%</td>
<td>Master’s</td>
</tr>
<tr>
<td>Software Developers, Applications</td>
<td>2.6%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Operations Research Analysts</td>
<td>2.4%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Cartographers &amp; Photogrammetrists</td>
<td>1.9%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Actuaries</td>
<td>1.9%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Forensic Science Technicians</td>
<td>1.7%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Web Developers</td>
<td>1.6%</td>
<td>Associate’s</td>
</tr>
<tr>
<td>Computer &amp; Information Systems Managers</td>
<td>1.5%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Geoscientists</td>
<td>1.5%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Environmental Science &amp; Protection Technicians</td>
<td>1.4%</td>
<td>Associate’s</td>
</tr>
<tr>
<td>Database Administrators</td>
<td>1.3%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Atmospheric &amp; Space Scientists</td>
<td>1.3%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>1.2%</td>
<td>Bachelor’s</td>
</tr>
<tr>
<td>Physicists</td>
<td>1.2%</td>
<td>Doctoral</td>
</tr>
</tbody>
</table>

*Average for all NC occupations = 0.6%

Projected **27,000+ job openings** per year in NC in STEM occupations (growth + turnover)

BLS projects STEM occupations will **grow more than twice as fast** as non-STEM in U.S. through 2031
Are there job opportunities for NC women in STEM?

Jobs have grown much faster for Women in STEM than Non-STEM

- STEM Industries: Change in Women’s Employment - 70%
- Non-STEM Industries: Change in Women’s Employment - 17%

More of Women’s Employment in STEM, but still fairly small

- 2011: 1-in-28 Women in STEM, 3.6%
- 2021: 1-in-20 Women in STEM, 5.0%

However, Women are still a minority in the industry

- No change from 10 years ago

Share of STEM Employment by Women

- 2011: 43.5%
- 2021: 43.6%

Source: US Census Bureau, LEHD Quarterly Workforce Indicators
Are there fair opportunities for women in STEM?

Women’s Earnings in STEM Industries

STEM industry pays well for Women, 2021

<table>
<thead>
<tr>
<th>Category</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-STEM Women</td>
<td>$43,763</td>
</tr>
<tr>
<td>STEM Women</td>
<td>$80,289</td>
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Source: US Census Bureau, LEHD Quarterly Workforce Indicators
Are there fair opportunities for women in STEM?

Women’s Earnings in STEM Industries

STEM industry pays well for Women, 2021

<table>
<thead>
<tr>
<th>Type</th>
<th>Average Annual Earnings</th>
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<tr>
<td>Non-STEM Women</td>
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</tbody>
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STEM industry wages rising faster for **Women** than **Men**

Not-adjusted for inflation

Women’s average annual earnings growth: 49.6%

Men’s average annual earnings growth: 42.6%

Source: US Census Bureau, LEHD Quarterly Workforce Indicators
Are there fair opportunities for women in STEM?

Women’s Earnings in STEM Industries

**STEM industry pays well for Women, 2021**

<table>
<thead>
<tr>
<th>Women’s Average Annual Earnings Growth</th>
<th>Men’s Average Annual Earnings Growth</th>
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<tr>
<td><strong>Women</strong></td>
<td><strong>Men</strong></td>
</tr>
<tr>
<td>$43,763</td>
<td>$80,289</td>
</tr>
</tbody>
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STEM industry wages rising faster for **Women** than **Men**

Gender pay gap only modestly improving
Still greater in **STEM** and Non-STEM industries

Women’s earnings for ever $1 of Men’s

Source: US Census Bureau, LEHD Quarterly Workforce Indicators
Women's Earnings in STEM Industries

**STEM industry pays well for Women, 2021**

<table>
<thead>
<tr>
<th></th>
<th>Non-STEM Women</th>
<th>Non-STEM Men</th>
<th>STEM Women</th>
<th>STEM Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$43,763</td>
<td>$63,093</td>
<td>$80,289</td>
<td>$123,255</td>
</tr>
</tbody>
</table>

**Gender pay gap only modestly improving**

Still greater in **STEM** and Non-STEM industries

Women's earnings for every $1 of Men's:

- 2011: $0.62
- 2021: $0.69

**Women's average annual earnings growth**

- Men: 42.6%
- Women: 49.6%

**STEM industry wages rising faster for Women than Men**

Not-adjusted for inflation

Source: US Census Bureau, LEHD Quarterly Workforce Indicators
What Commerce is Doing to Help?  NCcareers.org

- Launched in 2020 to provide unbiased occupational, educational, & credential information to students, jobseekers, & career planners

- Over 600,000 unique users have been to NCcareers – spending 8 minutes per visit on average
  - Including 60,000 last month generating half a million page views

Governance & Advisory Partners:

Is there awareness of STEM opportunities?
What Commerce is Doing to Help?

Division of Workforce Solutions

• Workforce Innovation & Opportunity Act, 2014
  • Federally-funded, employer-driven workforce services

• State Workforce Agency
  • Ecosystem, technical assistance, monitoring of 22 local workforce areas
  • 80+ NCWorks career centers

• Recruitment Strategy, Talent Acquisition
  • Job profiling and analysis, identifying labor pools, skills assessment and pre-/training referrals

• Sector Strategies
  • NC Job Ready Initiative, *First In Talent* strategic plan
  • IT in RTP (NCWorks Commission Member Pam Townsend)
  • IT in Gaston/Lincoln/Cleveland (InfoSys and Commerce DWS)

• ARPA – Women & Minority-Owned Small Business Grants
  • Work-based learning grant funding for small and micro-businesses
Secretary Sanders’ Initiatives to Support Women in STEM Industries

• The *First in Talent* plan includes strategies to enable more women to enter the workforce by increasing access to childcare, education, training, and family friendly work environments.

• NC Commerce participated in the Wake Invests in Women Challenge, organized by Wake Technical Community College.

  • Employers complete a self assessment to examine the diversity in gender and ethnicity in STEM and leadership positions
Secretary Sanders’ Initiatives to Support Women in STEM Industries

- Status of Women: Employment and Earnings
  - Advocate for employers to promote paid internships, training, apprenticeships, and recruitment for women in high-growth occupations with low female participation

  “Improving the status of women in North Carolina is not just a woman’s issue – it is a family, poverty, and economic issue.” – Machelle Sanders, Secretary

- Lady Cardinal STEM Mentorship Program
  - Mentorship program for female high school students to gain exposure to STEM related fields in state government

- Experience as a VP of a life sciences company, created a Women’s Innovation Network, and serves on OnBoardNC
Thank you.

NCcommerce.com/news/The-LEAD-Feed
Analytics.NCcommerce.com

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