

# North Carolina Career Exploration Guide



Your Resource for Career Clusters, Pathways  
and Occupations to help grow your future.



DREAM IT. PLAN IT. BE IT.  
**NCcareers.org**

**NC COMMUNITY  
COLLEGES**  
CREATING SUCCESS



**NC DEPARTMENT  
of COMMERCE**  
LABOR & ECONOMIC  
ANALYSIS



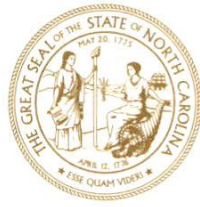
North Carolina Department of  
**PUBLIC INSTRUCTION**

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Get the latest information about North Carolina careers and industries at [nccareers.org](https://nccareers.org)

**Career Clusters and Pathways Source:** [National Career Clusters® Framework](#) implemented by Department of Defense ASVAB Career Exploration Program (updated 2016). Downloaded from [onetonline.org/find/career?c=0&g=Go](https://onetonline.org/find/career?c=0&g=Go).

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**STATE OF NORTH CAROLINA  
OFFICE OF THE GOVERNOR**

ROY COOPER  
GOVERNOR

Dear Students, Families, and Educators:

Welcome to North Carolina's Career Exploration Guide. Whether you're just starting to think about your future career, considering a career change, or helping advise someone on their career path, this guide provides the information and resources to "Dream it, Plan it, Be it."

One of my top priorities is to ensure we have a diverse and well-trained workforce for the jobs of today and tomorrow. A majority of all new jobs in the next ten years will require education beyond a high school diploma. For our state to continue to thrive, it's critical that everyone has the skills needed to be job-ready.

This guide, along with its online companion, [NCCareers.org](https://www.nccareers.org), was developed to lead you on a career exploration journey to identify occupations that fit your interests and the kind of pay you're looking for along with the education options needed to get you there. Our goal is to empower you to be better educated, healthier, and have more money in your pocket, so you can live a purposeful life.

Today's workforce needs are dynamic and ever-changing. I encourage you to use this guide to identify, prepare for and achieve a successful career.

With kind regards, I am

Very truly yours,

A handwritten signature in black ink that reads "Roy Cooper". The signature is written in a cursive, flowing style.

Roy Cooper



North Carolina Department of  
**PUBLIC INSTRUCTION**

Dear Student, Job Seeker, or Other Career Planner:

Access to the most current information about careers is a critical part of preparing for your future. This allows you to determine your own educational path and adjust, if and when new opportunities arise.

With this in mind, welcome to the latest version of the North Carolina Career Exploration Guide. This book is a valuable resource to help you to develop a plan for your future. It is designed around career clusters—the intersection of education, industry, work activities, and personal qualities. Clusters portray a common set of knowledge and skills required for career success in each path. This information, in combination with your own interests and goals, can help you identify occupations to further research and develop a targeted path for success through education and work.

As the economy continues to evolve, students using this Career Exploration Guide will be able to make career decisions that meet the needs of our state's current and emerging economy. This guide will help you make the best choices for now and for your long-term career.

Sincerely,

William S. Carver, II Ed.D.  
*Interim President*  
*North Carolina Community College System*

Catherine Truitt  
*State Superintendent*  
*NC Department of Public Instruction*



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# How to Use This Guide

Congratulations, you are taking the first step on a career exploration journey. This is a process for defining the next step in your work life.

Where you start a career journey varies depending on several factors like past work experience, knowledge of careers, and more. You can also go through the process several times throughout your working life as the job market changes or you develop new skills.



If you don't know a lot about jobs or are unsure of what you want to do, start by **Finding Your Interests**. During this self-assessment phase, use tools to understand your interests, values, salary needs and more. The results from these assessments can narrow potential occupations to a manageable number.



The **Explore Occupations** phase requires you to review information about individual occupations. This information addresses the long-term job outlook, salary, typical duties, minimum educational requirements, and more.



The third phase of your career journey is to **Plan Your Career**. This requires you to think about what job you want and how to get there. Within these pages you will find important resources to map out a career plan, discover information necessary for understanding the knowledge, experience, and skill requirements to get hired and build upon those to advance your career.



The next step is to act on that plan. This almost always means assessing your **Education & Training** options to meet job requirements or give you an advantage over other candidates. Here you will learn about higher education degrees and credentials offered at NC colleges and universities and options offered by private training providers.



The final step is to put this knowledge to use and start a **Job Search**. The job search section of this guide will tell you how to prepare for work. If you need help writing a resume, preparing for an interview, or tips to help you stand out as a candidate, you can find it in this section.

# Discover Where Your Interests & Career Clusters Intersect

The Interest Finder<sup>1</sup> is a self-assessment tool designed to help you identify your interests and translate them into occupations that best fit you. The following two pages contain 60 questions about work activities that some people perform in their jobs. The results from the Interest Profiler will help you discover your strong work-related interests and match them to careers..

## Instructions for Using the Interest Finder

- Read the work activities from top to bottom and answer in that order.
- Read each question carefully and decide how you would feel about doing each type of work. **Try not to think about whether you have enough education or training to do the work, or how much money you would make.** Just think about whether you would like or dislike performing the work activity.
- Mark the "Like," "Dislike," or "Unsure" box based on how much you would enjoy that activity.



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in-it

# Interest Finder

The Interest Finder is designed to help you identify your interests and translate them into occupations. **Don't worry if you have enough education or training to do the work or how much money you would make.** Check the boxes of activities you *think* you may like doing if you were skilled and able to do so.

Scan this QR code to access the online Interest Finder:



[nccareers.org/interest-finder](http://nccareers.org/interest-finder)

Work Activity	Like	Dislike	Unsure
Build kitchen cabinets			
Lay brick or tile			
Develop a new medicine			
Study ways to reduce water pollution			
Write books or plays			
Play a musical instrument			
Teach an individual an exercise routine			
Help people with personal or emotional problems			
Buy and sell stocks and bonds			
Manage a retail store			
Develop a spreadsheet using computer software			
Proofread records or forms			
Repair household appliances			
Raise fish in a fish hatchery			
Conduct chemical experiments			
Study the movement of planets			
Compose or arrange music			
Draw pictures			
Give career guidance to people			
Perform rehabilitation therapy			
Operate a beauty salon or barber shop			
Manage a department within a large company			
Load computer software into a large computer network			
Operate a calculator			
Assemble electronic parts			
Drive a truck to deliver packages to offices and homes			
Examine blood samples using a microscope			

Record total number of likes for each color/pattern:

--	--	--	--	--	--

Work Activity	Like	Dislike	Unsure
Investigate the cause of a fire			
Create special effects for movies			
Paint sets for plays			
Do volunteer work at a non-profit organization			
Teach children how to play sports			
Start your own business			
Negotiate business contracts			
Keep shipping and receiving records			
Calculate the wages of employees			
Test the quality of parts before shipment			
Repair and install locks			
Develop a way to better predict the weather			
Work in a biology lab			
Write scripts for movies or television shows			
Perform jazz or tap dance			
Teach sign language to people with hearing disabilities			
Help conduct a group therapy session			
Represent a client in a lawsuit			
Market a new line of clothing			
Inventory supplies using a hand-held computer			
Record rent payments			
Set up and operate machines to make products			
Put out forest fires			
Invent a replacement for sugar			
Do laboratory tests to identify diseases			
Sing in a band			
Edit movies			
Take care of children at a day-care center			
Teach a high-school class			
Sell merchandise at a department store			
Manage a clothing store			
Keep inventory records			
Stamp, sort, and distribute mail for an organization			

Record total number of likes for each color/pattern:


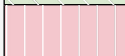

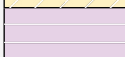


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# Scoring Instructions<sup>1</sup>


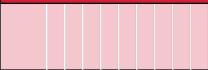

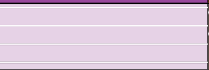


Work activity items are color/pattern coded to help you score and interpret results. There are six color/pattern bands of items to represent six Interest Areas. Items in the same color/pattern band represent a particular Interest Area. To reveal your Interest Areas, follow these instructions:

- Step 1:** Count the number of “Likes” you marked for the questions in green bands in the Interest Finder, then record the number in the first green box at the bottom of page 8.
- Step 2:** Count the number of “Likes” you marked for the questions in green bands in the Interest Finder, then record the number in the green box at the bottom of page 9.
- Step 3:** Add the numbers in the two green boxes on pages 8 and 9 and write the total in the “R” green box below. This total equals your score for the Realistic Interest Area.

**Repeat steps 1, 2, and 3 for the red, yellow, purple, orange, and blue questions.**

Color/ Pattern	Interest Area
	Realistic
	Investigative
	Artistic
	Social
	Enterprising
	Conventional

## Which Interest Area has your highest score: R, I, A, S, E, or C?

R	I	A	S	E	C
					
FIRST INTEREST AREA:		SECOND INTEREST AREA:		THIRD INTEREST AREA:	

## What Your Interest Areas Mean

Which occupations match your interests? The Interest Profiler measures interests in each of the six Holland RIASEC areas.<sup>2</sup> This section provides definitions for each of the six types.

At the start, you will want to explore occupations that include your First Interest Area. For example, a person with strong Realistic interests would probably be most satisfied with Realistic occupations (e.g., electrician, firefighter, surgical technologist). John Holland, who created the Holland code, suggests that most people will have interests in several of the six interest categories. If you have two Area scores that are the same, consider using them both. Use your Second and Third Interest Areas to explore additional careers.

**Read over the definitions of your First, Second, and Third Interest Areas on the following page to get a better understanding of your work-related interests. Each definition includes examples of activities that individuals with that interest type like to perform, as well as examples of famous people whose field of work matches that interest type.**

<sup>1</sup> The O\*NET Interest Profiler Short Form is a self-scored interest assessment. For information about scoring the paper-and-pencil version of the O\*NET Interest Profiler Short Form, please visit the O\*NET® Interest Profiler Short Form Psychometric Characteristics: Summary 2010 [oncenter.org/dl\\_files/IPSF\\_Psychometric.pdf](https://oncenter.org/dl_files/IPSF_Psychometric.pdf).

<sup>2</sup> The O\*NET Interest Profiler is compatible with Holland's (1985a) Theory of Vocational Personality, one of the most widely accepted approaches to vocational choice. Information for Interest Areas is extracted from the O\*NET Career Exploration Tools owned by the U.S. Department of Labor, Employment Training Administration (DOL/ETA). All O\*NET Assessment/ Counseling Tools are copyrighted. O\*NET is a trademark of DOL/ETA.





### Realistic – The “Doers”

People with Realistic interests like work activities that include practical, hands-on problems and solutions. They enjoy dealing with plants, animals, and real-world materials like wood, tools, and machinery. They often enjoy outside work. Often people with Realistic interests do not like occupations that mainly involve doing paperwork or working closely with others. Famous realists: TV carpenter Norm Abram, snowboarder Chloe Kim, and celebrity mechanic Jesse James.



### Investigative – The “Thinkers”

People with Investigative interests like work activities that have to do with ideas and thinking more than with physical activity. They prefer to search for facts and figure out problems mentally rather than to persuade or lead people. Prominent investigators: astrophysicist Neil deGrasse Tyson, primatologist Jane Goodall, mathematician/computer scientist Grace Murray Hopper, and theoretical physicist Stephen Hawking.



### Artistic – The “Creators”

People with Artistic interests like work activities that deal with the artistic side of things, such as forms, designs, and patterns. They like self-expression in their work. They prefer settings where work can be done without following a clear set of rules. Well-known artists: painter/sculptor Leonardo da Vinci, actress Halle Berry, writer J.K. Rowling, and singers Lady Gaga and Tony Bennett.



### Social – The “Helpers”

People with Social interests like work activities that assist others and promote learning and personal development. They prefer to communicate more than to work with objects, machines, or data. They like to teach, give advice, help, or otherwise be of service to people. Famous helpers: educator Booker T. Washington, mental health care reformer Dorothea Dix, TV psychologist Phil McGraw, and civil rights leader Dr. Martin Luther King Jr.



### Enterprising – The “Persuaders”

People with Enterprising interests like work activities that have to do with starting up and carrying out projects, especially business ventures. They like persuading and leading people and making decisions. They enjoy taking risks for profit. These people prefer action rather than thought. Prominent persuaders: TV mogul Oprah Winfrey, business magnate Jeff Bezos, and entrepreneur Elon Musk.



### Conventional – The “Organizers”

People with Conventional interests follow procedures and maintain accurate written and numerical business records. They prefer working in structured settings where roles and tasks are clearly defined. Well-known organizers: businessman J.C. Penney, Supreme Court Justice Sandra Day O'Connor, and professional organizer Alejandra Costello.

John Holland suggested that viewing the Interest Areas on a hexagon can help people understand how their interests overlap or how they may be distinctly different. Interests that are most similar are beside each other on the hexagon (e.g., Social, Enterprising, and Conventional). On the other hand, interests across the hexagon from each other (e.g., Conventional and Artistic) are least likely to have similarities. Sometimes people's combined interests are opposite from or not adjacent to each other. In this case, people sometimes choose to focus on the most different interest as a hobby or to find a unique work setting that merges their interests.



# Career Cluster Match

Career Clusters are groups of related types of work. They give you an easy way to explore different kinds of jobs within one broad category. Start with one of the clusters—like health care or construction—to learn what it involves, current trends, and the different careers it offers.

It's often easier to change jobs and advance within a career cluster. Identifying with a cluster can help you build your career and choose credentials—such as a college degree, specialized training, or certifications—that will qualify you for a variety of different, but related, jobs.

To identify the clusters most interesting to you, place a check mark in the space next to the items that best describe you. Then add the number of checks in each row. Enter that number in the “Total Checked” column on the right. The row with the most checks corresponds to the Career Cluster that is most likely to interest you.

Scan this QR code to access the online Career Cluster Match



[nccareers.org/clustermatch](http://nccareers.org/clustermatch)

	Activities That Describe What I Like To Do	Personal Qualities That Describe Me	School Subjects That I Like	Total Checked
ROW A	<input type="checkbox"/> Learn how things grow and stay alive <input type="checkbox"/> Make the best use of the earth's natural resources <input type="checkbox"/> Hunt and/or fish <input type="checkbox"/> Protect the environment <input type="checkbox"/> Be outdoors in all kinds of weather <input type="checkbox"/> Plan, budget, and keep records <input type="checkbox"/> Operate machines and keep them in good repair	<input type="checkbox"/> Self-reliant <input type="checkbox"/> Nature lover <input type="checkbox"/> Physically active <input type="checkbox"/> Planner <input type="checkbox"/> Creative problem solver	<input type="checkbox"/> Math <input type="checkbox"/> Life Sciences <input type="checkbox"/> Earth Sciences <input type="checkbox"/> Chemistry <input type="checkbox"/> Agriculture	_____
ROW B	<input type="checkbox"/> Read and follow blueprints and/or instructions <input type="checkbox"/> Picture in my mind what a finished product looks like <input type="checkbox"/> Work with my hands <input type="checkbox"/> Perform work that requires precise results <input type="checkbox"/> Solve technical problems <input type="checkbox"/> Visit and learn from beautiful, historic, or interesting buildings <input type="checkbox"/> Follow logical, step-by-step procedures	<input type="checkbox"/> Curious <input type="checkbox"/> Good at following directions <input type="checkbox"/> Pay attention to details <input type="checkbox"/> Good at visualizing possibilities <input type="checkbox"/> Patient and persistent	<input type="checkbox"/> Math <input type="checkbox"/> Drafting <input type="checkbox"/> Physical Sciences <input type="checkbox"/> Construction <input type="checkbox"/> Electrical/Heat, Air Conditioning and Refrigeration/Tech Education	_____
ROW C	<input type="checkbox"/> Use my imagination to communicate new information to others <input type="checkbox"/> Perform in front of others <input type="checkbox"/> Read and write <input type="checkbox"/> Play a musical instrument <input type="checkbox"/> Perform creative, artistic activities <input type="checkbox"/> Use video and recording technology <input type="checkbox"/> Design brochures and posters	<input type="checkbox"/> Creative and imaginative <input type="checkbox"/> Good communicator, good vocabulary <input type="checkbox"/> Curious about new technology <input type="checkbox"/> Relate well to feelings and thoughts of others <input type="checkbox"/> Determined/tenacious	<input type="checkbox"/> Art/Graphic Design <input type="checkbox"/> Music <input type="checkbox"/> Speech & Drama <input type="checkbox"/> Journalism/Literature <input type="checkbox"/> Audiovisual Technologies	_____

	Activities That Describe What I Like To Do	Personal Qualities That Describe Me	School Subjects That I Like	Total Checked
ROW D	<input type="checkbox"/> Perform routine, organized activities, but can be flexible <input type="checkbox"/> Work with numbers and detailed information <input type="checkbox"/> Be the leader in a group <input type="checkbox"/> Make business contact with people <input type="checkbox"/> Work with computer programs <input type="checkbox"/> Create reports and communicate ideas <input type="checkbox"/> Plan my work and follow instructions without close supervision	<input type="checkbox"/> Organized <input type="checkbox"/> Practical and logical <input type="checkbox"/> Patient <input type="checkbox"/> Tactful <input type="checkbox"/> Responsible	<input type="checkbox"/> Computer Applications/ Business and Information Technology <input type="checkbox"/> Accounting <input type="checkbox"/> Math <input type="checkbox"/> English <input type="checkbox"/> Economics	_____
ROW E	<input type="checkbox"/> Communicate with different types of people <input type="checkbox"/> Help others with their homework or to learn new things <input type="checkbox"/> Go to school <input type="checkbox"/> Direct and plan activities for others <input type="checkbox"/> Handle several responsibilities at once <input type="checkbox"/> Acquire new information <input type="checkbox"/> Help people overcome their challenges	<input type="checkbox"/> Friendly <input type="checkbox"/> Decision maker <input type="checkbox"/> Helpful <input type="checkbox"/> Innovative/Inquisitive <input type="checkbox"/> Good listener	<input type="checkbox"/> Language Arts <input type="checkbox"/> Social Studies <input type="checkbox"/> Math <input type="checkbox"/> Science <input type="checkbox"/> Psychology	_____
ROW F	<input type="checkbox"/> Work with numbers <input type="checkbox"/> Work to meet a deadline <input type="checkbox"/> Make predications based on existing facts <input type="checkbox"/> Have a framework of rules by which to operate <input type="checkbox"/> Analyze financial information and interpret it to others <input type="checkbox"/> Handle money with accuracy and reliability <input type="checkbox"/> Take pride in the way I dress and look	<input type="checkbox"/> Trustworthy <input type="checkbox"/> Orderly <input type="checkbox"/> Self-confident <input type="checkbox"/> Logical <input type="checkbox"/> Methodical or efficient	<input type="checkbox"/> Accounting <input type="checkbox"/> Math <input type="checkbox"/> Economics <input type="checkbox"/> Finance <input type="checkbox"/> Business Law	_____
ROW G	<input type="checkbox"/> Be involved in politics <input type="checkbox"/> Negotiate, defend, and debate ideas and topics <input type="checkbox"/> Plan activities and work cooperatively with others <input type="checkbox"/> Work with details <input type="checkbox"/> Perform a variety of duties that may change often <input type="checkbox"/> Analyze information & interpret it to others <input type="checkbox"/> Travel and see things that are new to me	<input type="checkbox"/> Good communicator <input type="checkbox"/> Competitive <input type="checkbox"/> Service minded <input type="checkbox"/> Well organized <input type="checkbox"/> Problem solver	<input type="checkbox"/> Government <input type="checkbox"/> Language Arts <input type="checkbox"/> History <input type="checkbox"/> Math <input type="checkbox"/> Foreign Language	_____
ROW H	<input type="checkbox"/> Work under pressure <input type="checkbox"/> Help sick people and animals <input type="checkbox"/> Make decisions based on logic and info <input type="checkbox"/> Participate in health and science classes <input type="checkbox"/> Respond quickly and calmly in emergencies <input type="checkbox"/> Work as a member of a team <input type="checkbox"/> Follow guidelines precisely and meet strict standards of accuracy	<input type="checkbox"/> Compassionate and caring <input type="checkbox"/> Good at following directions <input type="checkbox"/> Conscientious & careful <input type="checkbox"/> Patient <input type="checkbox"/> Good listener	<input type="checkbox"/> Biological Sciences <input type="checkbox"/> Chemistry <input type="checkbox"/> Math <input type="checkbox"/> Health Science <input type="checkbox"/> Language Arts	_____

	Activities That Describe What I Like To Do	Personal Qualities That Describe Me	School Subjects That I Like	Total Checked
ROW I	<input type="checkbox"/> Investigate new places and activities <input type="checkbox"/> Work with all ages and types of people <input type="checkbox"/> Organize activities in which other people enjoy themselves <input type="checkbox"/> Have a flexible schedule <input type="checkbox"/> Help people make up their minds <input type="checkbox"/> Communicate easily, tactfully, courteously <input type="checkbox"/> Learn about other cultures	<input type="checkbox"/> Tactful <input type="checkbox"/> Self-motivated <input type="checkbox"/> Works well with others <input type="checkbox"/> Outgoing <input type="checkbox"/> Slow to anger	<input type="checkbox"/> Language Arts/ Speech <input type="checkbox"/> Foreign Language <input type="checkbox"/> Social Sciences <input type="checkbox"/> Marketing <input type="checkbox"/> Food Services	_____
ROW J	<input type="checkbox"/> Care about people's needs and problems <input type="checkbox"/> Participate in community services and/or volunteering <input type="checkbox"/> Listen to other people's viewpoints <input type="checkbox"/> Help people be at their best <input type="checkbox"/> Work with people from preschool age to old age <input type="checkbox"/> Think of new ways to do things <input type="checkbox"/> Make friends with different kinds of people	<input type="checkbox"/> Good communicator, good listener <input type="checkbox"/> Caring <input type="checkbox"/> Non-materialistic <input type="checkbox"/> Uses intuition & logic <input type="checkbox"/> Non-judgmental	<input type="checkbox"/> Language Arts <input type="checkbox"/> Psychology/ Sociology <input type="checkbox"/> Family & Consumer Sciences <input type="checkbox"/> Finance <input type="checkbox"/> Foreign Language	_____
ROW K	<input type="checkbox"/> Work with computers <input type="checkbox"/> Reason clearly and logically to solve complex problems <input type="checkbox"/> Use machines, techniques, and processes <input type="checkbox"/> Read technical materials and diagrams and solve technical problems <input type="checkbox"/> Adapt to change <input type="checkbox"/> Play video games and figure out how they work <input type="checkbox"/> Concentrate for long periods without being distracted	<input type="checkbox"/> Logical/analytical thinker <input type="checkbox"/> Sees details in the big picture <input type="checkbox"/> Persistent <input type="checkbox"/> Good concentration skills <input type="checkbox"/> Precise and accurate	<input type="checkbox"/> Math <input type="checkbox"/> Science <input type="checkbox"/> Computer Tech/Apps <input type="checkbox"/> Communications <input type="checkbox"/> Graphic Design	_____
ROW L	<input type="checkbox"/> Work under pressure or in the face of danger <input type="checkbox"/> Make decisions based on my own observations <input type="checkbox"/> Interact with other people <input type="checkbox"/> Be in positions of authority <input type="checkbox"/> Respect rules and regulations <input type="checkbox"/> Debate and win arguments <input type="checkbox"/> Observe and analyze people's behavior	<input type="checkbox"/> Adventurous <input type="checkbox"/> Dependable <input type="checkbox"/> Community-minded <input type="checkbox"/> Decisive <input type="checkbox"/> Optimistic	<input type="checkbox"/> Language Arts <input type="checkbox"/> Psychology/ Sociology <input type="checkbox"/> Government/History <input type="checkbox"/> Law Enforcement <input type="checkbox"/> EMT/Health Science	_____

	Activities That Describe What I Like To Do	Personal Qualities That Describe Me	School Subjects That I Like	Total Checked
ROW M	<input type="checkbox"/> Work with my hands, and learn best that way <input type="checkbox"/> Put things together <input type="checkbox"/> Do routine, organized, and accurate work <input type="checkbox"/> Perform activities that produce tangible results <input type="checkbox"/> Apply math to work out solutions <input type="checkbox"/> Use hand and power tools and operate equipment/machinery <input type="checkbox"/> Visualize objects in three dimensions from flat drawings	<input type="checkbox"/> Practical <input type="checkbox"/> Observant <input type="checkbox"/> Physically active <input type="checkbox"/> Step-by-step thinker <input type="checkbox"/> Coordinated	<input type="checkbox"/> Math-Geometry <input type="checkbox"/> Chemistry <input type="checkbox"/> Trade and Industry courses <input type="checkbox"/> Physics <input type="checkbox"/> Language Arts	_____
ROW N	<input type="checkbox"/> Shop and go to the mall <input type="checkbox"/> Be in charge <input type="checkbox"/> Make displays and promote ideas <input type="checkbox"/> Give presentations and enjoy public speaking <input type="checkbox"/> Persuade people to buy products or to participate in activities <input type="checkbox"/> Communicate my ideas to other people <input type="checkbox"/> Take advantage of opportunities to make extra money	<input type="checkbox"/> Enthusiastic <input type="checkbox"/> Competitive <input type="checkbox"/> Creative <input type="checkbox"/> Self-motivated <input type="checkbox"/> Persuasive	<input type="checkbox"/> Language Arts <input type="checkbox"/> Math <input type="checkbox"/> Business Ed/Marketing <input type="checkbox"/> Economics <input type="checkbox"/> Computer Applications	_____
ROW O	<input type="checkbox"/> Interpret formulas <input type="checkbox"/> Find the answers to questions <input type="checkbox"/> Work in a laboratory <input type="checkbox"/> Figure out how things work and investigate new things <input type="checkbox"/> Explore new technology <input type="checkbox"/> Experiment to find the best way to do something <input type="checkbox"/> Pay attention to details and help things be precise	<input type="checkbox"/> Detail oriented <input type="checkbox"/> Inquisitive <input type="checkbox"/> Objective <input type="checkbox"/> Methodical <input type="checkbox"/> Mechanically inclined	<input type="checkbox"/> Math <input type="checkbox"/> Science <input type="checkbox"/> Drafting/Computer-aided drafting <input type="checkbox"/> Electronics/Computer Networking <input type="checkbox"/> Technical classes, Technology Education	_____
ROW P	<input type="checkbox"/> Travel <input type="checkbox"/> See well and have quick reflexes <input type="checkbox"/> Solve mechanical problems <input type="checkbox"/> Design efficient processes <input type="checkbox"/> Anticipate needs and prepare to meet them <input type="checkbox"/> Drive or ride <input type="checkbox"/> Move things from one place to another	<input type="checkbox"/> Realistic <input type="checkbox"/> Mechanical <input type="checkbox"/> Coordinated <input type="checkbox"/> Observant <input type="checkbox"/> Planner	<input type="checkbox"/> Math <input type="checkbox"/> Trade and Industry courses <input type="checkbox"/> Physical Sciences <input type="checkbox"/> Economics <input type="checkbox"/> Foreign Language	_____

List the letters of your top 3 scoring rows and use the table on page 7 to match rows to the Career Cluster.








**Row Letters:** \_\_\_\_\_

**Cluster Names:** \_\_\_\_\_

# 16 Career Clusters & Their Career Pathways

Now that you have identified your interests, you have an opportunity to learn about career clusters and how they connect with those interests. **Career clusters** are groups of occupations in the same field of work that require similar skills. Each cluster contains several smaller groups called **career pathways** that connect to educational programs, industries, and careers.

While a career cluster paints a broad picture of a group of occupations, a pathway helps you focus on and develop a clear, more informed educational plan over time. The structure of the National Career Clusters Framework of 16 career clusters and 73 related career pathways supports your growing career awareness and exploration.

Career Cluster	Description	Career Pathway
 Agriculture, Food, & Natural Resources	Do you enjoy working with plants and animals? Interested in working to conserve natural resources or protect the environment? This cluster includes careers in the production, processing, distribution, financing, and marketing of agricultural products including food, plants, fiber, animals, wood, and other plant and animal resources.	<ul style="list-style-type: none"> <li>• Agribusiness</li> <li>• Animal</li> <li>• Environmental Service</li> <li>• Food Products &amp; Processing</li> <li>• Natural Resources</li> <li>• Plant</li> <li>• Power, Structural &amp; Technical</li> </ul>
 Architecture & Construction	Do you want to design, build, and maintain structures where people live, work, and play? This cluster includes careers in designing, planning, managing, building, and maintaining of the constructed environment.	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Design/Pre-Construction</li> <li>• Maintenance/Operations</li> </ul>
 Arts, Audio/Video Technology, & Communications	Do you like to perform? Do you love to use your artistic creativity on the job? This cluster includes careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content, including visual and performing arts and design, journalism, and entertainment services.	<ul style="list-style-type: none"> <li>• Journalism &amp; Broadcasting</li> <li>• Performing Arts</li> <li>• Printing Technology</li> <li>• Telecommunications</li> <li>• Visual Arts</li> </ul>
 Business Management & Administration	Are you entrepreneurial? Do you like to plan and organize activities? This cluster includes careers in planning, organizing, directing, and evaluating business functions essential to effective and productive business operations.	<ul style="list-style-type: none"> <li>• Administrative Support</li> <li>• Business Information Management</li> <li>• Human Resources Management</li> <li>• General Management</li> <li>• Operations Management</li> </ul>
 Education & Training	Do you enjoy teaching others? Are you comfortable with public speaking? This cluster includes careers in planning, managing, and providing education and training services and related learning support services, including administration and library services.	<ul style="list-style-type: none"> <li>• Administration &amp; Administrative Support</li> <li>• Professional Support Services</li> <li>• Teaching/Training</li> </ul>
 Finance	Do you like to work with numbers? Do you want to help people plan for their financial futures? This cluster includes careers in financial and investment planning, banking, insurance, and business financial management.	<ul style="list-style-type: none"> <li>• Accounting</li> <li>• Banking Services</li> <li>• Business Finance</li> <li>• Securities &amp; Investments</li> <li>• Insurance</li> </ul>
 Government & Public Administration	Are you interested in government and politics? Does the idea of protecting our country appeal to you? This cluster includes careers in planning and providing government services at the federal, state, and local levels, including services related to national security, legislation, foreign service, revenue and taxation, and regulations.	<ul style="list-style-type: none"> <li>• Governance</li> <li>• National Security</li> <li>• Planning</li> <li>• Public Management &amp; Administration</li> <li>• Regulation</li> <li>• Revenue &amp; Taxation</li> </ul>



Career Cluster	Description	Career Pathway
 Health Science	Do you enjoy helping people feel better? Would you like working in a hospital or other medical facility? This cluster includes careers in planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnological research and development.	<ul style="list-style-type: none"> <li>• Biotechnology Research &amp; Development</li> <li>• Diagnostic Services</li> <li>• Health Informatics</li> <li>• Support Services</li> <li>• Therapeutic Services</li> </ul>
 Hospitality & Tourism	Do you want to help other people enjoy their leisure time? Would you like to work in a hotel or in a restaurant? This cluster includes careers in the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation events, and travel-related services.	<ul style="list-style-type: none"> <li>• Lodging</li> <li>• Recreation, Amusements &amp; Attractions</li> <li>• Restaurants &amp; Food/Beverage Services</li> <li>• Travel &amp; Tourism</li> </ul>
 Human Services	Do you like to help families solve problems? Would you like to connect people with the assistance they need? This cluster includes careers that provide family and individual services such as counseling and mental health, personal care, and consumer advice.	<ul style="list-style-type: none"> <li>• Consumer Services</li> <li>• Counseling &amp; Mental Health Services</li> <li>• Early Childhood Development &amp; Services</li> <li>• Family &amp; Community Services</li> <li>• Personal Care Services</li> </ul>
 Information Technology	Do you like technology? Do you enjoy working with computer hardware, software, multimedia, or network systems? This cluster includes careers related to the design, development, support, and management of hardware, software, Internet, multimedia, and systems integration services.	<ul style="list-style-type: none"> <li>• Information Support &amp; Services</li> <li>• Network</li> <li>• Programming &amp; Software Development</li> <li>• Web &amp; Digital Communications</li> </ul>
 Law, Public Safety, Corrections & Security	Do you like to help protect other people's safety? Do you want to help enforce the law? This cluster includes careers in planning, managing, and providing legal, public safety, corrections, protective services, and homeland security, including professional and technical support.	<ul style="list-style-type: none"> <li>• Correction Services</li> <li>• Emergency &amp; Fire Management Services</li> <li>• Law Enforcement Services</li> <li>• Legal Services</li> <li>• Security &amp; Protective Services</li> </ul>
 Manufacturing	Do you like to design and make things? Are you comfortable working with machines? This cluster includes careers in planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities, such as production planning and control, maintenance, and manufacturing/process engineering.	<ul style="list-style-type: none"> <li>• Maintenance, Installation &amp; Repair</li> <li>• Manufacturing Production Process Development</li> <li>• Production</li> <li>• Quality Assurance</li> </ul>
 Marketing	Do you like to sell products or services? Are you friendly and outgoing? This cluster includes careers in planning, managing, and performing marketing activities to reach organizational objectives.	<ul style="list-style-type: none"> <li>• Merchandising</li> <li>• Marketing Management</li> <li>• Marketing Communications</li> <li>• Marketing Research</li> <li>• Professional Sales</li> </ul>
 Science, Technology, Engineering & Mathematics	Do you like science or math? Do you enjoy solving problems? This cluster includes occupations and careers in planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering), including laboratory and testing services, and research and development services.	<ul style="list-style-type: none"> <li>• Engineering &amp; Technology</li> <li>• Science &amp; Mathematics</li> </ul>
 Transportation, Distribution & Logistics	Would you like to fly planes, drive trucks, or pilot ships? Does the idea of fixing these vehicles appeal to you? This cluster includes careers in planning and managing the movement of people, materials, and goods by road, pipeline, air, rail, and water. Professional support services like logistics services and mobile equipment and facility maintenance are also part of this cluster.	<ul style="list-style-type: none"> <li>• Facility &amp; Mobile Equipment Maintenance</li> <li>• Logistics Planning &amp; Management Services</li> <li>• Sales &amp; Service</li> <li>• Transportation Operations</li> <li>• Transportation/Infrastructure Planning, Management &amp; Regulation</li> </ul>

# Introduction to Career Clusters Matrix

Now that you've finished the Interest Finder, circle the column headings on these two pages that match the interest areas that you discovered on page 10. Then look at the occupations listed under your types and mark any that appeal to you.

**Remember! The occupations in this matrix give you only a few examples.**

To find additional careers, explore the career clusters information that follows. Below are examples of occupations organized by interest type and cluster.

Source: O'NET OnLine and LEAD

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
<b>Agriculture, Food &amp; Natural Resources</b>	Pest Control Workers; Logging Equipment Operators; Hazardous Materials Removal Workers	Zoologists & Wildlife Biologists; Animal Scientists; Environmental Engineers		Farm Labor Contractors	Natural Sciences Managers; Farm Product Buyers & Purchasing Agents; Agricultural Engineers	Environmental Science & Protection Technicians; Farm Equipment Mechanics; Pesticide Handlers, Sprayers, & Applicators
<b>Architecture &amp; Construction</b>	Construction Laborers; Roofers; Sheet Metal Workers	Landscape Architects; Civil Engineers	Interior Designers; Architects		Construction Managers; Cost Estimators; Supervisors of Landscaping Workers	Crane & Tower Operators; Highway Maintenance Workers; Electricians
<b>Arts, Audio/Video Technology &amp; Communications</b>	Telecommunications Line Installers; Motion Picture Camera Operators; Craft Artists	Telecommunications Equipment Repairers; Film & Video Editors; Multimedia Artists & Animators	Art Directors; Editors; Photographers	Broadcast News Analysts; Choreographers; Public Address System & Other Announcers	Agents of Artists, Performers & Athletes; Musicians & Singers; Commercial & Industrial Designers	Broadcast Technicians; Technical Writers; Telecommunications Equipment Installers
<b>Business Management &amp; Administration</b>	Postal Service Mail Carriers; Library Assistants, Clerical; Office Machine Operators	Management Analysts; Operations Research Analysts	Fundraisers; Training & Development Specialists	Customer Service Representatives; Human Resources Specialists; Training & Development Managers	Industrial Production Managers; Computer & Information Systems Managers; Chief Executives	Auditors; Compensation, Benefits, & Job Analysis Specialists; New Accounts Clerks
<b>Education &amp; Training</b>	Vocational Education Teachers; Multimedia Collections Specialists; Museum Technicians & Conservators	College Economics Teachers; Health Specialties Teachers; Instructional Coordinators	Interpreters & Translators; Preschool Teachers; College Art, Drama, & Music Teachers	Special Education Teachers; College Recreation & Fitness Studies Teachers; School Counselors	Preschool Education Administrators; Curators; College Business Teachers	Librarians; Teacher Assistants; College Education Administrators
<b>Finance</b>	Auto Insurance Appraisers	Financial Analysts; Risk Management Specialists; Insurance Underwriters		Insurance Sales Agents; Personal Financial Advisors; Postmasters & Mail Superintendents	Loan Interviewers & Clerks; Brokerage Clerks; Credit Analysts	Bill & Account Collectors; Loan Officers; Tellers
<b>Government &amp; Public Administration</b>	Agricultural Inspectors; Transportation Security Screeners; Construction & Building Inspectors	Statistical Assistants; Occupational Health & Safety Specialists	Urban & Regional Planners	Emergency Management Directors; Eligibility Interviewers; Legislators	Equal Opportunity Representatives & Officers; Tax Examiners & Collectors; Financial Examiners	Court Clerks; Transportation Inspectors; Assessors
<b>Health Science</b>	Veterinary Assistants; Medical Equipment Preparers; Surgical Technologists	Surgeons; Podiatrists; Pharmacists	Recreational Therapists; Psychiatrists; Speech-Language Pathologists	Nurse Practitioners; Pediatricians, General; Respiratory Therapy Technicians	Opticians, Dispensing; Psychiatric Technicians; Medical & Health Services Managers	Dental Assistants; Pharmacy Technicians; Medical Transcriptionists
<b>Hospitality &amp; Tourism</b>	Dishwashers; Bakers; Maids & Housekeeping Cleaners		Chefs & Head Cooks; Recreation Workers; Cooks, Private Household	Tour Guides & Escorts; Waiters & Waitresses; Concierges	Lodging Managers; Umpires & Referees; Bartenders	Hotel Desk Clerks; Reservation & Transportation Ticket Agents; Food Service Managers
<b>Human Services</b>	Tailors; Massage Therapists; Shampooers	Healthcare Social Workers; Marriage & Family Therapists; Industrial-Organizational Psychologists	Cosmetologists; Childcare Workers; Substance Abuse Counselors	Clergy; Rehabilitation Counselors; Personal Care Aides	Skincare Specialists; Manicurists & Pedicurists; Credit Counselors	Barbers; Religious Activity Directors; Social & Human Service Assistants
<b>Information Technology</b>	Computer User Support Specialists; Network & Computer Systems Administrators; Software Developers, Applications	Computer Programmers; Software Quality Assurance Engineers & Testers; Information Security Analysts	Video Game Designers; Web Developers	Informatics Nurse Specialists	Computer Network Support Specialists; Search Marketing Strategists; Information Technology Project Managers	Computer Network Architects; Web Administrators; Database Administrators
<b>Law, Public Safety, Corrections &amp; Security</b>	Parking Enforcement Workers; Bailiffs; Forest Fire Inspectors & Prevention Specialists	Forensic Science Technicians; Emergency Medical Technicians & Paramedics; Fish & Game Wardens	Forensic Artists	Crossing Guards; Animal Control Workers; Probation Officers	Lawyers; Sheriffs & Deputy Sheriffs; Private Detectives & Investigators	Paralegals & Legal Assistants; Security Guards; Police, Fire, & Ambulance Dispatchers
<b>Manufacturing</b>	Dental Laboratory Technicians; Computer-Controlled Machine Tool Operators; Industrial Machinery Mechanics	Industrial Engineering Technicians; Medical Equipment Repairers; Tool & Die Makers	Stone Cutters & Carvers; Glass Blowers; Musical Instrument Repairers & Tuners	Medical Appliance Technicians	Supervisors of Production & Operating Workers; Production, Planning, & Expediting Clerks; Supervisors of Mechanics, Installers & Repairers	Purchasing Agents; Security and Fire Alarm Systems Installers; Machinists
<b>Marketing</b>	Driver/Sales Workers; Demonstrators & Product Promoters	Market Research Analysts & Marketing Specialists; Sales Engineers	Public Relations Specialists; Models; Merchandise Displayers	Supervisors of Retail Sales Workers; Supervisors of Non-Retail Sales Workers	Real Estate Brokers; Wholesale & Retail Buyers; Parts Salespersons	Real Estate Sales Agents; Cashiers; Marketing Managers
<b>Science, Technology, Engineering &amp; Mathematics</b>	Mechanical Engineers; Chemical Engineers; Electrical Engineers	Microbiologists; Materials Scientists; Chemists	Mathematicians; Biochemists & Biophysicists; Sociologists	Political Scientists	Industrial Engineers; Economists; Architectural & Engineering Managers	Social Science Research Assistants; Quality Control Analysts; Statisticians
<b>Transportation, Distribution &amp; Logistics</b>	Automotive Body Repairers; Bus & Truck Mechanics & Diesel Engine Specialists; Commercial Pilots	Traffic Technicians; Avionics Technicians		Bus Drivers; Flight Attendants; Ambulance Drivers & Attendants	Aircraft Cargo Handling Supervisors; Logisticians; Taxi Drivers & Chauffeurs	Air Traffic Controllers; Cargo & Freight Agents; Dispatchers, Except Police, Fire, & Ambulance

## ADDITIONAL TOOLS ON NCCAREERS.ORG

In addition to Interest Finder and Career Cluster Match, NCCareers.org has four additional assessments that can help you to target occupations that are right for you.



**Reality Check** helps you understand the relationship between lifestyle choices and an occupation. How nice of a house and car? Do you spend a lot of money on clothes or entertainment? By selecting the location where you want to live and answering the questions, you can understand how much money you will need to make.



**SKILLS  
MATCHER**



What skills do you have or want to develop? The **Skills Matcher** asks you to choose the skill level that best matches your current level, or the level you would like to achieve, across 40 skill areas like Management, Repairing, Customer Service, Memorization and more.



**WORK VALUES  
SORTER**



What is most important to you in a job? How important is it that you do something different every day? Work independently? Feel valued and appreciated? The **Work Values Sorter** requires you to make tough choices to understand which of the six values is most important to you: Independence, Support Recognition, Relationships, Working Conditions and Achievement.



**SMALL BUSINESS/ENTREPRENEUR  
READINESS SURVEY**



Everyone is intrigued by the idea that they could "Be Their Own Boss" but are you ready for it? Are you prepared to lead people, handle pressure, risk losing a good portion of your savings? Take the **Small Business/ Entrepreneur Readiness Survey** and find out.



# Portrait of a Graduate

What competencies do all students need to ensure the broadest range of postsecondary opportunities, be it college, career, or military? This Portrait of a Graduate promotes student learning and skill attainment required in an ever-changing world. North Carolina graduates must be able to:



## Adapt.

- Demonstrate agility in thought processes and problem-solving.
- Accept feedback, praise, setbacks, and criticism.
- Balance diverse viewpoints and beliefs to reach workable solutions.
- Demonstrate flexibility when navigating challenging situations.
- Exhibit steadfastness despite difficulty, opposition, and/or failure.

## Collaborate.

- Contribute and respond to diverse perspectives to achieve a common goal.
- Leverage strengths to resolve conflict and foster teamwork.
- Interact respectfully with others in digital and in-person interactions.
- Embrace a variety of roles in a group as a participant and a leader.

## Communicate.

- Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills.
- Listen to decipher meaning, values, attitudes, and intentions.
- Ask questions and synthesize messages to seek understanding.
- Engage in productive discourse to resolve disagreements.
- Craft communication for a range of purposes and audiences.
- Use storytelling and public speaking to express ideas and connect with others.

## Think Critically.

- Analyze, assess, and reconstruct personal thought processes.
- Apply thinking that is clear, rational, and evidence based.
- Evaluate and prioritize solutions to difficult or complex problems.
- Employ creative improvements to systems, processes, and organizations.

## Have Empathy.

- Demonstrate understanding, sensitivity, concern, and respect.
- Share in others' feelings, opinions, and experiences through personal and digital connections.
- Value and embrace diverse cultures and unique perspectives.
- Foster belonging and trust through mutual respect and dialogue.

## Have a Learner's Mindset.

- Possess an ongoing desire to learn, unlearn, and relearn.
- Embrace curiosity to experience new ideas, demonstrate growth, and persist through challenges.
- Translate knowledge to provide different contexts to drive change and innovation.
- Develop positive attitudes and beliefs about learning.

## Take Personal Responsibility.

- Adhere to a set of core values that are evident in choices and actions.
- Earn trust and respect through honest, principled behaviors.
- Honor commitments.
- Recognize how personal decisions and actions have impacts beyond self.
- Take ownership of decisions and persevere through challenges.
- Demonstrate self-control and composure.

Learn more about North Carolina Portrait of a Graduate: [dpi.nc.gov/districts-schools/operation-polaris/portrait-graduate](https://dpi.nc.gov/districts-schools/operation-polaris/portrait-graduate)



# Explore Occupations

Now that you have learned more about yourself, use that information to focus on a handful of occupations. Visit the pages that can tell you more about your preferred cluster, its pathway, and related jobs. Additionally, you can:

- View a brief description, employment data and wages for selected careers.
- Read a personal career story from someone working in the cluster.

For more detailed information about any occupation, including local wages and videos, visit [NCcareers.org/occupation](https://www.nccareers.org/occupation).

<b>Agricultural, Food &amp; Natural Resources</b>  18-23	<b>Architecture &amp; Construction</b>  24-29	<b>Arts, Audio/Video Technology &amp; Communications</b>  30-35	<b>Business Management &amp; Administration</b>  36-41
<b>Education &amp; Training</b>  42-47	<b>Finance</b>  48-53	<b>Government &amp; Public Administration</b>  54-59	<b>Health Science</b>  60-65
<b>Hospitality &amp; Tourism</b>  66-71	<b>Human Services</b>  72-77	<b>Information Technology</b>  78-83	<b>Law, Public Safety, Corrections &amp; Security</b>  84-89
<b>Manufacturing</b>  90-95	<b>Marketing</b>  96-101	<b>Science, Technology, Engineering &amp; Mathematics</b>  102-107	<b>Transportation, Distribution &amp; Logistics</b>  108-113

## SELECTED CAREERS OPENINGS & RATINGS KEY

As you look at the Selected Careers in each career cluster, you'll notice stars in the columns for 10-Year Openings and Growth Rate. The ratings range from 1 to 5 stars. The higher the number of stars, the greater the number of openings or rate of growth.



**Best**



**Very Good**



**Good**



**Fair**



**Poor**

*The minimum education requirements listed are determined by the Bureau of Labor Statistics. Actual market conditions may require additional education and/or training which can be found at your local North Carolina Community College.*

*Additional details about how NC's Community Colleges can help is available in the Education and Training section starting on page 117.*





# Agriculture, Food, & Natural Resources

Think about life without agriculture, food and natural resources. What would we eat? Who would create and maintain the parks that help us relax and enjoy nature? How would we know whether our drinking water is safe? This industry has a huge impact on our daily lives, and — like other industries — technology has brought about changes in the way it operates.

Unmanned aircraft systems (UAS or drones) map natural resource areas to check forest health, evaluate soil erosion, and inventory wildlife populations. Large farms increasingly use GPS systems to help steer machinery more precisely and computer-based maps to prescribe amounts of fertilizer, seed, and chemicals for specific areas.

The Agriculture, Food, and Natural Resources cluster contains occupations that require all levels of training. Nonfarm animal caretaker and refuse and recyclable materials collector positions are among the fastest-growing occupations that require the least training in this cluster. Jobs that usually require associate and bachelor's degrees such as environmental science and protection technicians, environmental engineers, and natural science managers are also projected to increase. Employers who often hire workers in this cluster include farmers; federal, state, and local governments; pest control businesses; and landscaping companies.

## CAREER RESEARCH

- United States Department of Agriculture National Institute of Food and Agriculture [nifa.usda.gov](http://nifa.usda.gov)
- National Sustainable Agriculture Information Service/Appropriate Technology Transfer for Rural Areas (ATTRA) [attra.ncat.org](http://attra.ncat.org)
- USDA New Farmers [newfarmers.usda.gov](http://newfarmers.usda.gov)
- National FAA Organization [ffa.org/home](http://ffa.org/home)
- Institute of Food Technologists [ift.org](http://ift.org)
- Soil Science Society of America [soils.org/students](http://soils.org/students)
- Nature Jobs [nature.com/naturejobs/science](http://nature.com/naturejobs/science)
- Conservation Job Board [conservationjobboard.com](http://conservationjobboard.com)

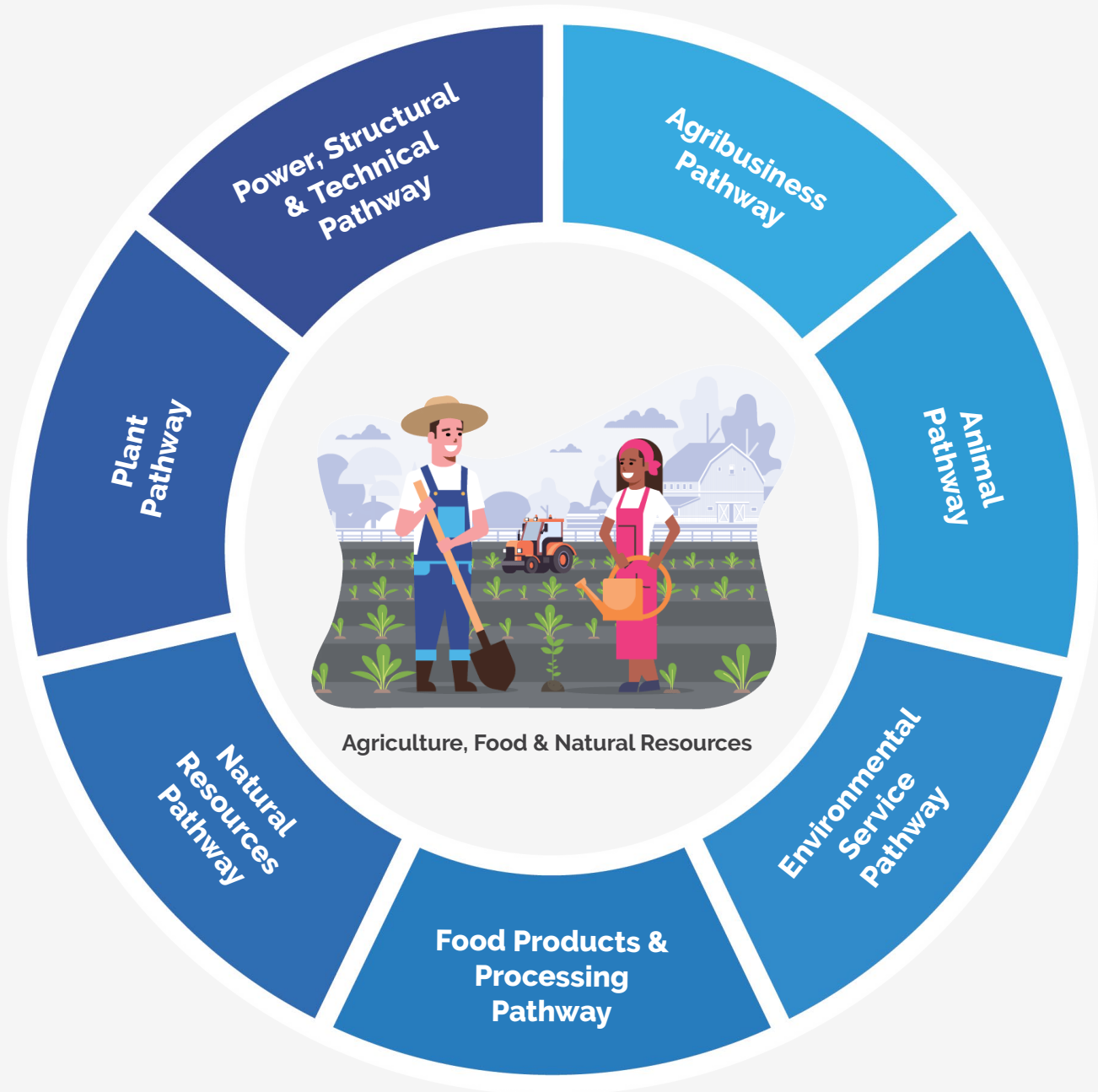
Find more  
Agriculture,  
Food & Natural  
Resources  
Occupations:







## CAREER PATHWAYS



## CORE SKILLS

- Science
- Operation and Control
- Equipment Maintenance
- Operations Monitoring
- Equipment Selection
- Troubleshooting
- Repairing
- Quality Control Analysis
- Management of Material Resources
- Management of Financial Resources



## SELECTED OCCUPATIONS

### Agribusiness Pathway

- **Business and Financial Operations**  
*Buyers and Purchasing Agents, Farm Products; Farm Labor Contractors.*
- **Management**  
*Farmers, Ranchers, and Other Agricultural Managers.*

### Animal Pathway

- **Farming, Fishing, and Forestry**  
*Animal Breeders; Farmworkers, Farm, Ranch, and Aquacultural Animals.*
- **Life, Physical, and Social Science**  
*Animal Scientists.*
- **Personal Care and Service**  
*Nonfarm Animal Caretakers.*

### Environmental Service Pathway

- **Architecture and Engineering**  
*Civil Engineers; Environmental Engineering Technicians; Environmental Engineers.*
- **Building and Grounds Cleaning and Maintenance**  
*Pest Control Workers.*
- **Construction and Extraction**  
*Hazardous Materials Removal Workers.*
- **Life, Physical, and Social Science**  
*Environmental Science and Protection Technicians, Including Health.*
- **Production**  
*Water and Wastewater Treatment Plant and System Operators.*
- **Transportation and Material Moving**  
*Refuse and Recyclable Material Collectors.*

### Food Products & Processing Pathway

- **Farming, Fishing, and Forestry**  
*First-Line Supervisors of Farming, Fishing, and Forestry Workers; Graders and Sorters, Agricultural Products.*
- **Life, Physical, and Social Science**  
*Agricultural and Food Science Technicians; Food Scientists and Technologists.*

### Natural Resources Pathway

- **Farming, Fishing, and Forestry**  
*Fallers; Fishers and Related Fishing Workers; Forest and Conservation Workers; Log Graders and Scalers; Logging Equipment Operators; Logging Workers, All Other.*
- **Life, Physical, and Social Science**  
*Forest and Conservation Technicians; Foresters; Geological and Petroleum Technicians; Zoologists and Wildlife Biologists.*
- **Management**  
*Natural Sciences Managers.*

### Plant Pathway

- **Building and Grounds Cleaning and Maintenance**  
*Pesticide Handlers, Sprayers, and Applicators, Vegetation; Tree Trimmers and Pruners.*
- **Farming, Fishing, and Forestry**  
*Agricultural Workers, All Other; Farmworkers and Laborers, Crop, Nursery, and Greenhouse.*
- **Life, Physical, and Social Science**  
*Biological Technicians; Soil and Plant Scientists.*

### Power, Structural, & Technical Pathway

- **Architecture and Engineering**  
*Agricultural Engineers.*
- **Farming, Fishing, and Forestry**  
*Agricultural Equipment Operators.*
- **Installation, Maintenance, & Repair**  
*Farm Equipment Mechanics and Service Technicians.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Agricultural Technicians	Assist agricultural and food scientists by performing duties such as measuring and analyzing the quality of food and agricultural products.	Food Products and Processing Systems	★★	★★	\$25,480 / \$39,770	Associate's degree	RIC
Animal Scientists	Research ways to improve the efficiency and safety of agricultural establishments and products.	Animal Systems	★	★★	\$55,970 / \$101,650	Bachelor's degree	IR
Biological Technicians	Assist biological and medical scientists in laboratories. Set up, operate, and maintain laboratory instruments and equipment, monitor experiments, make observations, and calculate and record results.	Plant Systems	★★★★★	★★★★★	\$30,150 / \$39,780	Bachelor's degree	RIC
Buyers & Purchasing Agents	Purchase goods or services for organizations to use or resell. They try to get the best deal for their organization: the highest quality goods and services at the lowest price.	Agribusiness Systems	★★★★★	★	\$35,610 / \$59,580	Bachelor's degree	ECR
Environmental Engineering Technicians	Implement the plans that environmental engineers develop.	Environmental Service Systems	★	★★★★★	\$27,590 / \$52,320	Associate's degree	RIC
Environmental Engineers	Use the principles of engineering, soil science, biology, and chemistry to create solutions to environmental problems. May focus on global issues such as unsafe drinking water, climate change, and environmental sustainability.	Environmental Service Systems	★★★★	★★	\$59,900 / \$83,970	Bachelor's degree	IRC
Environmental Science & Protection Technicians, Including Health	Monitor the environment and investigate sources of pollution and contamination, often under the supervision of environmental scientists and specialists.	Environmental Service Systems	★★	★★★★★	\$28,150 / \$41,200	Associate's degree	IRC
Farm Equipment Mechanics & Service Technicians	Diagnose, adjust, repair, or overhaul farm machinery and vehicles such as tractors, harvesters, dairy equipment, and irrigation systems.	Power, Structural & Technical Systems	★★★★	★★★★★	\$26,900 / \$37,950	High School +	RCI
Food Scientists & Technologists	Use chemistry, microbiology, engineering, and other sciences to study the principles related to processing and deterioration of foods.	Food Products and Processing Systems	★	★★★★	\$33,760 / \$45,400	Bachelor's degree	IRC
Forest & Conservation Technicians	Provide technical assistance for conserving soil, water, forests, or related natural resources. May compile data about size, content, condition, and other characteristics of forest tracts.	Natural Resources Systems	★★	★★	\$32,310 / \$41,420	Associate's degree	RIE
Foresters	Manage the overall land quality of forests, parks, rangelands, and other natural resources..	Natural Resources Systems	★★	★★	\$43,660 / \$63,900	Bachelor's degree	RIE
Hazardous Materials Removal Workers	Identify, remove, pack, transport, or dispose of hazardous materials like asbestos, lead-based paint, waste oil, fuel, transmission fluid, radioactive materials, or contaminated soil.	Environmental Service Systems	★★★★	★★★★★	\$19,410 / \$34,540	High School +	RC
Natural Sciences Managers	Supervise scientists, including chemists, physicists, and biologists. Direct research and development activities, and coordinate activities like testing, quality control, and production.	Natural Resources Systems	★★★★★	★★★★★	\$89,640 / \$148,040	Bachelor's degree	EI
Nonfarm Animal Caretakers	Provide care for animals. Feed, water, groom, bathe, and exercise pets and other nonfarm animals. Job tasks vary by position and place of work.	Animal Systems	★★★★★	★★★★★	\$17,770 / \$24,040	High School +	RC
Pest Control Workers	Remove unwanted creatures such as roaches, rats, ants, bedbugs, and termites that infest buildings and surrounding areas.	Environmental Service Systems	★★★★★	★★★★	\$21,820 / \$33,480	High School +	RC
Pesticide Handlers, Sprayers, & Applicators, Vegetation	Mix or apply pesticides, herbicides, fungicides, or insecticides through sprays, dusts, vapors, soil incorporation, or chemical application on trees, shrubs, lawns, or botanical crops. Usually must have specific training and State or Federal certification.	Plant Systems	★★★★	★★★★	\$16,810 / \$26,090	High School +	RC
Soil & Plant Scientists	Conduct research in breeding, physiology, production, yield, and management of crops, trees, shrubs, and nursery stock. Study the chemical composition of soils as they relate to plant or crop growth.	Plant Systems	★★★★	★★★★	\$46,720 / \$88,230	Bachelor's degree	IR
Water & Wastewater Treatment Plant & System Operators	Operate or control an entire process or system of machines, often through the use of control boards, to transfer or treat water or wastewater.	Environmental Service Systems	★★★★★	★	\$30,130 / \$42,390	High School +	RC
Zoologists & Wildlife Biologists	Study the origins, behavior, diseases, genetics, and life processes of animals and wildlife. May specialize in wildlife research and management.	Natural Resources Systems	★★	★★	\$43,090 / \$55,650	Bachelor's degree	IR



# Career Stories



## Parker Williams

Beaufort County Community College  
*Agribusiness*

**Q: What makes your job important?**

**A:** I help keep the soil healthy by delivering and applying nutrients, minerals, and fertilizers. The services I provide are important for farmers, consumers, and families.

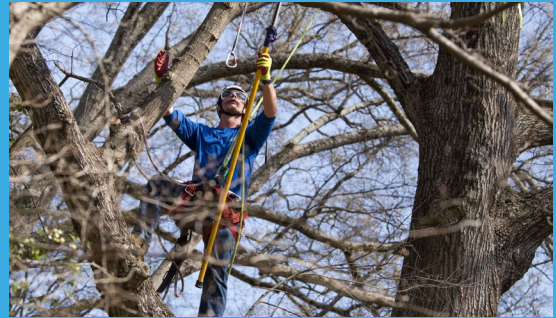
**Q: What does a typical day at work look like for you?**

**A:** Everyone comes into work at 7:00 am. All the trucks are cranked to warm up. Once the engines are warm, we hook the trailers to the trucks and start loading fertilizer or other products. Product is then delivered to local farmers to fill their spreader trucks. This is done throughout crop planting season.

In the off season, we load up atvs, and assist local farmers with gathering and analyzing soil samples which are sent off for testing to identify what soil modifications will be needed for the next season.

**Q: What kind of training and education do you need to get this job?**

**A:** Having an Associate Degree in Agribusiness helped me get my job. I also had to take a short-term training CDL course in addition to my degree. My degree helped me to enter the job knowing what to do.



## Robert Brogan

Alamance County Community College  
*Horticulture*

**Q: How did you decide to pursue your occupation?**

**A:** Coming from the Marine Corps, I had decided that I wanted to create and grow things rather than destroy them. Horticulture was an easy jump to make because I have always liked plants and being outdoors.

**Q: What do you like about your field?**

**A:** I like that I'm outside a lot. It's also very hands-on and requires moving around a lot and being physical.

**Q: Where did you get your training/education?**

**A:** I had a couple of classes in high school for urban agriculture, but most of my training has been here at ACC.

**Q: What are your future career goals?**

**A:** In five years, I would like to imagine potentially owning my own nursery that produces various vegetables and fruits for the community around me.

**Q: What advice do you have for people considering your career path?**

**A:** Take advantage of all of the education you can get. While it isn't necessary, it is incredibly helpful to have. Attend as many trade shows/industry education events as possible, because the ability to go to those types of events can lead to great networking opportunities and furthering your own knowledge on your craft.





# Architecture & Construction

Have you ever watched a building under construction? Who designed and constructed it? Most likely, it took a team of architects, civil engineers, construction laborers, cement masons and concrete finishers, and structural iron and steel workers to construct a building. Also think about the workers who create a healthy environment inside like the heating, air conditioning, and refrigeration mechanics and installers, plumbers, and electricians as well as the people who install and maintain the elevators to move people quickly and efficiently throughout the building.

Think a bit deeper and you'll realize that cost estimators used mathematic and analytic skills to help make decisions about the total cost to construct the building. Construction managers coordinated the work of specialty trade contractors to ensure they provided quality work in a timely manner.

North Carolina's construction industry is expected to grow and show increases in the occupations mentioned above and more. These occupations require educational backgrounds ranging from high school diplomas to graduate degrees. Workers may find employment with plumbing, heating and air-conditioning contractors; landscaping businesses; electrical contractors; federal, state, and local government; and commercial building companies in this field.

## CAREER RESEARCH

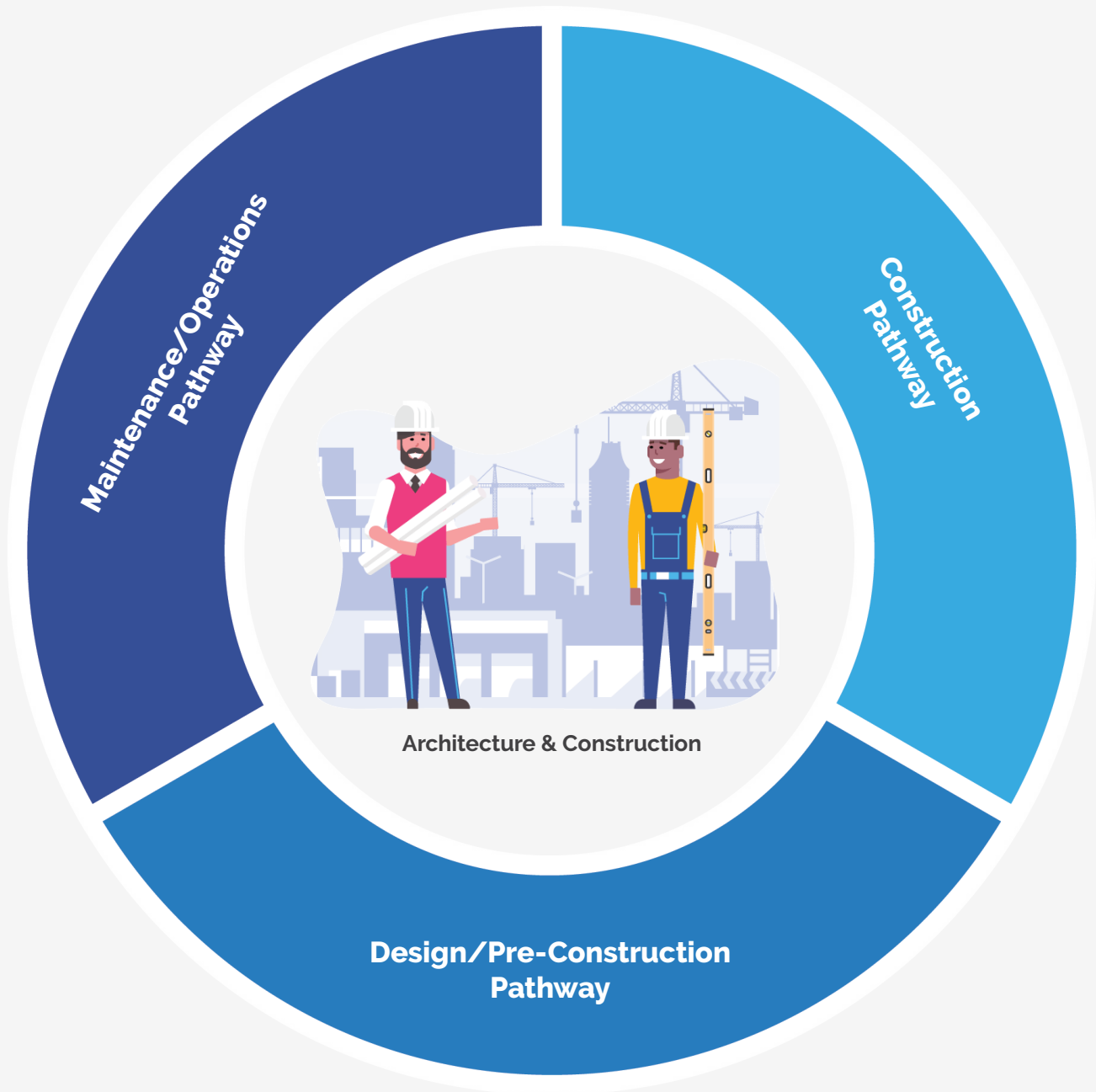
- The American Institute of Architects [aia.org](http://aia.org)
- Technology Student Association [tsaweb.org](http://tsaweb.org)
- American Society of Civil Engineers [www.asce.org/career-growth/students](http://www.asce.org/career-growth/students)
- The National Center for Construction Education and Research [nccer.org](http://nccer.org)
- SkillsUSA [skillsusa.org](http://skillsusa.org)
- US Green Building Council [new.usgbc.org](http://new.usgbc.org)
- Construction Jobs [constructionjobs.com](http://constructionjobs.com)

Find more  
Architecture &  
Construction  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Installation
- Repairing
- Equipment Maintenance
- Equipment Selection
- Operation and Control
- Troubleshooting
- Operations Monitoring
- Quality Control Analysis
- Coordination
- Management of Material Resources





## SELECTED OCCUPATIONS

### Construction Pathway

- **Construction and Extraction**  
*Brickmasons and Blockmasons; Carpenters; Carpet Installers; Cement Masons and Concrete Finishers; Construction Laborers; Continuous Mining Machine Operators; Derrick Operators, Oil and Gas; Drywall and Ceiling Tile Installers; Earth Drillers, Except Oil and Gas; Electricians; Fence Erectors; First-Line Supervisors of Construction Trades and Extraction Workers; Floor Layers, Except Carpet, Wood, and Hard Tiles; Floor Sanders and Finishers; Glaziers; Helpers, Construction Trades, All Other; Helpers—Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters; Helpers—Carpenters; Helpers—Electricians; Helpers—Extraction Workers; Helpers—Painters, Paperhangers, Plasterers, and Stucco Masons; Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters; Helpers—Roofers; Insulation Workers, Floor, Ceiling, and Wall; Insulation Workers, Mechanical; Mine Cutting and Channeling Machine Operators; Mining Machine Operators, All Other; Operating Engineers and Other Construction Equipment Operators; Painters, Construction and Maintenance; Paperhangers; Paving, Surfacing, and Tamping Equipment Operators; Pile Driver Operators; Pipelayers; Plasterers and Stucco Masons; Plumbers, Pipefitters, and Steamfitters; Reinforcing Iron and Rebar Workers; Rock Splitters, Quarry; Roof Bolters, Mining; Roofers; Rotary Drill Operators, Oil and Gas; Roustabouts, Oil and Gas; Segmental Pavers; Service Unit Operators, Oil, Gas, and Mining; Sheet Metal Workers; Solar Photovoltaic Installers; Stonemasons; Structural Iron and Steel Workers; Tapers; Terrazzo Workers and Finishers; Tile and Marble Setters.*
- **Installation, Maintenance, and Repair**  
*Manufactured Building and Mobile Home Installers; Riggers.*
- **Management**  
*Construction Managers.*
- **Production**  
*Structural Metal Fabricators and Fitters.*
- **Transportation and Material Moving**  
*Conveyor Operators and Tenders; Crane and Tower Operators; Dredge Operators; Excavating and Loading Machine and Dragline Operators; Hoist and Winch Operators; Loading Machine Operators, Underground Mining.*

### Design/Pre-Construction Pathway

- **Architecture and Engineering**  
*Architects, Except Landscape and Naval; Architectural and Civil Drafters; Civil Engineering Technicians; Civil Engineers; Landscape Architects; Surveying and Mapping Technicians; Surveyors.*
- **Arts, Design, Entertainment, Sports, and Media**  
*Interior Designers.*
- **Business and Financial Operations**  
*Cost Estimators.*

### Maintenance/Operations Pathway

- **Building and Grounds Cleaning and Maintenance**  
*First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers; Grounds Maintenance Workers, All Other; Landscaping and Groundskeeping Workers.*
- **Construction and Extraction**  
*Boilermakers; Construction and Related Workers; Elevator Installers and Repairers; Highway Maintenance Workers; Plumbers, Pipefitters, and Steamfitters; Septic Tank Servicers and Sewer Pipe Cleaners.*
- **Installation, Maintenance, and Repair**  
*Commercial Divers; Control and Valve Installers and Repairers, Except Mechanical Door; Electrical Power-Line Installers and Repairers; Heating, Air Conditioning, and Refrigeration Mechanics and Installers; Helpers—Installation, Maintenance, and Repair Workers; Mechanical Door Repairers; Millwrights; Refractory Materials Repairers, Except Brickmasons.*
- **Production**  
*Stationary Engineers and Boiler Operators.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/Median Wages	Minimum Education	Interest Areas
Architects, Except Landscape & Naval	Plan and design houses, office buildings, and other structures.	Design/Pre-Construction	★★★★	★★★★	\$48,660 /\$74,780	Bachelor's degree	AI
Architectural & Civil Drafters	Prepare detailed drawings of architectural designs and plans for buildings and structures based on architects' specifications. Make drawings and topographical and relief maps used in civil engineering projects like highways, bridges, and pipelines.	Design/Pre-Construction	★★★★	★★	\$37,050 /\$55,830	Associate's degree	RCA
Civil Engineering Technicians	Apply theory and principles of civil engineering to plan, design, and oversee construction and maintenance of structures and facilities under the supervision of engineering staff or physical scientists.	Design/Pre-Construction	★★★★	★★	\$35,710 /\$53,940	Associate's degree	RCI
Civil Engineers	Design, construct, supervise, operate and maintain construction projects and systems, including roads, buildings, airports, tunnels, dams, bridges, and water supply and sewage systems.	Design/Pre-Construction	★★★★★	★★★★★	\$57,120 /\$83,540	Bachelor's degree	RI
Construction Managers	Plan, coordinate, budget, and supervise construction projects from development to completion.	Construction	★★★★★	★★★★	\$63,600 /\$102,400	Bachelor's degree	ERC
Cost Estimators	Collect and analyze data to estimate the time, money, materials, and labor needed to manufacture a product or provide a service. Usually specialize in a particular industry or type of product.	Design/Pre-Construction	★★★★	★★★	\$34,780 /\$61,190	Bachelor's degree	CE
Electrical Power-Line Installers & Repairers	Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light- or heavy-duty transmission towers.	Maintenance/Operations	★★★★	★★	\$41,470 /\$65,200	High School +	RIC
Electricians	Install and maintain electrical power, communications, lighting, and control systems in homes, businesses, and factories.	Construction	★★★★★	★★★★★	\$32,090 /\$45,480	High School +	RIC
Elevator Installers & Repairers	Install, maintain, and fix elevators, escalators, moving walkways, and other lifts.	Maintenance/Operations	★	★★★★★	\$33,740 /\$62,370	High School +	RIC
First-Line Supervisors of Construction Trades & Extraction Workers	Directly supervise and coordinate activities of construction or extraction workers.	Construction	★★★★★	★★★	\$41,740 /\$60,880	High School +	ERC
First-Line Supervisors of Landscaping, Lawn Service & Groundskeeping Workers	Directly oversee and coordinate landscaping or groundskeeping staff work. May review contracts and prepare estimates of labor and materials costs.	Maintenance/Operations	★★★★	★★	\$34,360 /\$51,060	High School +	ERC
Heating, Air Conditioning & Refrigeration Mechanics & Installers	Work on heating, ventilation, cooling, and refrigeration systems that control the temperature and air quality in buildings.	Maintenance/Operations	★★★★★	★★★★	\$28,420 /\$45,640	Postsecondary nondegree award	RCI
Interior Designers	Make indoor spaces functional, safe, and beautiful by determining space requirements and selecting essential and decorative items.	Design/Pre-Construction	★★★	★★★	\$32,570 /\$51,240	Bachelor's degree	AE
Landscape Architects	Design parks and other outdoor spaces.	Design/Pre-Construction	★★	★★★	\$40,910 /\$65,750	Bachelor's degree	AIR
Millwrights	Install, take apart, repair, reassemble, and move machinery in factories, power plants, and construction sites.	Maintenance/Operations	★★★	★★★★	\$34,410 /\$49,640	High School +	RCI
Solar Photovoltaic Installers	Assemble, set up, and maintain rooftop or other systems that convert sunlight into energy.	Construction	★★★	★★★★★	\$29,080 /\$37,770	High School +	RC
Surveying & Mapping Technicians	Collect data and make maps of the Earth's surface.	Design/Pre-Construction	★★★★	★★★	\$27,650 /\$43,420	High School +	CRI
Surveyors	Make precise measurements to determine property boundaries.	Design/Pre-Construction	★★★	★★★	\$44,110 /\$71,080	Bachelor's degree	RCI



# Career Stories



## Hailey Greenwell

Fayetteville Technical Community College  
*Electrical Systems Technology Student*

**Q: What is the best part of being an electrician?**

**A:** The best part of being an electrician is that every day is different.

**Q: What would interest others to know about being an electrician?**

**A:** It's not as intimidating as it seems! Being an electrician requires you to be teachable, and if you're ready to learn, this is a great field to be in.

**Q: What kind of training and education do you need to become an electrician?**

**A:** It depends on the state but here in North Carolina you can start as an apprentice with no experience. However, going to a technical school like Fayetteville Technical Community College helps tremendously in preparation for your first job.

**Q: What advice would you give other women who might be interested in a field like this that is non-traditional for women?**

**A:** Don't let your gender have any influence on what career field you want to enter. Make sure you have a good hard work ethic and don't let anybody talk down to you because you're a woman.



## Wyatt Edwards

Surry Community College  
*HVAC Apprentice*

**Q: What made you interested in this career path?**

**A:** I knew about it because my stepdad worked in this field. I thought it was interesting and have always wanted to do something hands-on.

**Q: Why is your job important?**

**A:** My job is important because if AC goes down teachers and students will be hot and not be able to concentrate.

**Q: What does a typical day at work look like for you?**

**A:** It's different every day. One day you work on an AC unit, then the next a refrigeration unit, and the next plumbing. You do not have to sit in an office all day. You get to get out and talk to people. You get to challenge your brain to get what you have to accomplish done.

**Q: How/Where did you start in your career?**

**A:** With Surry County Schools, in this apprenticeship.

**Q: What advice do you have for people considering your career path?**

**A:** Not to just learn in a class. Venture out and try to learn on your own and try to learn how things work. If anybody gives you advice, consider taking it.



# Arts, Audio/Video Technology & Communications

Cultural and leisure activities help us balance our work and personal lives. In Arts, Audio/Video Technology and Communications, a great variety of workers give us movies, paintings, music downloads, books, and museums. Actors, artists, musicians, and writers obviously make their living in jobs that are part of this cluster. Less evident are the employees who work in the background at occupations like set designers, agents and business managers, audio and video equipment technicians, and print binding and finishing workers.

As in many clusters, technology has required workers to learn new skills. Lighting and sound systems are quite different than they were even a decade ago, providing new multimedia options for staging performances and exhibits. Publishers now use technologies to create e-books that are far different from those used for print versions.

Several Arts, Audio/Video Technology and Communications cluster careers are likely to have strong growth over the next decade. Among them are technical writers, telecommunications line installers and repairers, and audio and video equipment technicians. Approximately two-thirds of the careers in this industry require postsecondary education, especially a bachelor's degree. Industries that often have employment for this cluster's workers include wired telecommunication companies, newspaper publishers (print and electronic), commercial printing companies, television stations, and electrical contractors.

## CAREER RESEARCH

- Actors' Equity Association  
[actorsequity.org](http://actorsequity.org)
- The Society of Professional Audio Recording Services  
[spars.com](http://spars.com)
- Technology Student Association  
[tsaweb.org](http://tsaweb.org)
- The Association for Women in Sports Media  
[awsmonline.org](http://awsmonline.org)
- The National Scholastic Press Association  
[studentpress.org/nspa](http://studentpress.org/nspa)
- NC Arts Council  
[ncarts.org/artist-opportunities](http://ncarts.org/artist-opportunities)
- AV Job Listing  
[avjoblistings.com](http://avjoblistings.com)

Find more  
Arts, Audio/Visual  
Technology &  
Communications  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Operations Analysis
- Persuasion
- Negotiation
- Time Management
- Writing
- Coordination
- Reading Comprehension
- Technology Design
- Active Listening
- Speaking





## SELECTED OCCUPATIONS

### Journalism & Broadcasting Pathway

- **Arts, Design, Entertainment, Sports, and Media**  
*Audio and Video Equipment Technicians; Broadcast News Analysts; Broadcast Technicians; Camera Operators, Television, Video, and Motion Picture; Editors; Film and Video Editors; Media and Communication Equipment Workers, All Other; Photographers; Public Address System and Other Announcers; Radio and Television Announcers; Radio Operators; Sound Engineering Technicians; Technical Writers; Writers and Authors.*

### Performing Arts Pathway

- **Arts, Design, Entertainment, Sports, and Media**  
*Actors; Choreographers; Dancers; Entertainers and Performers, Sports and Related Workers, All Other; Music Directors and Composers; Musicians and Singers; Producers and Directors; Public Address System and Other Announcers.*
- **Business and Financial Operations**  
*Agents and Business Managers of Artists, Performers, and Athletes.*
- **Personal Care and Service**  
*Costume Attendants; Makeup Artists, Theatrical and Performance.*

### Printing Technology Pathway

- **Office and Administrative Support**  
*Desktop Publishers; Proofreaders and Copy Markers.*
- **Production**  
*Prepress Technicians and Workers; Print Binding and Finishing Workers; Printing Press Operators.*

### Telecommunications Pathway

- **Installation, Maintenance, and Repair**  
*Telecommunications Equipment Installers and Repairers, Except Line Installers; Telecommunications Line Installers and Repairers*

### Visual Arts Pathway

- **Arts, Design, Entertainment, Sports, and Media**  
*Art Directors; Artists and Related Workers; Commercial and Industrial Designers; Craft Artists; Designers, All Other; Fashion Designers; Fine Artists, Including Painters, Sculptors, and Illustrators; Floral Designers; Graphic Designers; Multimedia Artists and Animators; Set and Exhibit Designers..*





## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace.

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Agents & Business Managers of Artists, Performers, & Athletes	Represent and promote artists, performers, and athletes in dealings with current or prospective employers by handling business matters for clients.	Performing Arts	★★	★★★★★	\$35,770 /\$74,140	Bachelor's degree	ES
Art Directors	Develop design concepts and presentation approaches for visual communications media, such as print, broadcasting, and advertising. Direct workers engaged in art work or layout design.	Visual Arts	★★★	★	\$62,590 /\$96,870	Bachelor's degree	AE
Audio & Video Equipment Technicians	Set up, or set up and operate audio and video equipment like microphones, sound speakers, video screens, projectors, video monitors, recording equipment, connecting wires and cables, and sound and mixing boards.	Journalism and Broadcasting	★★★	★★★★★	\$23,130 /\$40,680	Postsecondary nondegree award	RIC
Broadcast Technicians	Set up, operate, and maintain electronic equipment used to transmit radio and television programs.	Journalism and Broadcasting	★★	★★★★★	\$25,340 /\$39,370	Associate's degree	RCI
Choreographers	Use dance performances to express ideas and stories.	Performing Arts	★	★★★★★	\$30,610 /\$39,940	High School +	ASE
Commercial & Industrial Designers	Develop and design manufactured products like cars, home appliances, and children's toys. Combine artistic talent with research on product use, marketing, and materials to create the most functional and appealing product design.	Visual Arts	★★★	★★★★	\$40,190 /\$77,360	Bachelor's degree	AER
Editors	Plan, review, and revise content for publication.	Journalism and Broadcasting	★★★★★	★★★	\$26,540 /\$60,530	Bachelor's degree	AEC
Film & Video Editors	Manipulate moving images that entertain or inform an audience.	Journalism and Broadcasting	★★	★★★★★	\$21,780 /\$39,000	Bachelor's degree	AEI
Fine Artists, Including Painters, Sculptors, & Illustrators	Use a variety of materials and techniques to create art for sale and exhibition. Create original works of art more for their aesthetic value rather than for functionality.	Visual Arts	★★	★★	\$16,970 /\$31,480	Bachelor's degree	AR
Graphic Designers	Create visual concepts — by hand or using computer software — to communicate ideas that inspire, inform, or captivate consumers. Develop the overall layout and production design for advertisements, brochures, magazines, and corporate reports.	Visual Arts	★★★★★	★★★★	\$28,900 /\$49,980	Bachelor's degree	ARE
Music Directors & Composers	Lead musical groups during performances and recording sessions. Composers write and arrange original music in a variety of musical styles.	Performing Arts	★	★★★	\$16,350 /\$37,940	Bachelor's degree	AES
Photographers	Use technical expertise, creativity, and composition skills to produce and preserve images that visually tell a story or record an event.	Journalism and Broadcasting	★★★★★	★	\$20,690 /\$30,640	High School +	AR
Producers & Directors	Create motion pictures, television shows, live theater, and other performing arts productions. Interpret a writer's script to entertain or inform an audience.	Performing Arts	★★★	★★★★★	\$23,140 /\$59,510	Bachelor's degree	EAS
Sound Engineering Technicians	Set up, operate, and maintain the electrical equipment for media programs.	Journalism and Broadcasting	★	★★★★★	\$18,110 /\$37,690	Postsecondary nondegree award	RA
Technical Writers	Write and edit technical materials like equipment manuals, journal articles, or operating and maintenance instructions. Communicate difficult information so that it is easier to read and may also help in laying out their writing.	Journalism and Broadcasting	★★★★★	★★★★★	\$48,630 /\$76,530	Bachelor's degree	AIC
Telecommunications Equipment Installers & Repairers, Except Line Installers	Set up and maintain devices or equipment that carry communications signals, connect to telephone lines, or access the Internet.	Telecommunications	★★★★★	★★★★	\$35,950 /\$58,480	Postsecondary nondegree award	RIC
Telecommunications Line Installers & Repairers	Install or repair telecommunications cables, including fiber optics.	Telecommunications	★★★★★	★★★★	\$29,040 /\$44,910	High School +	RE
Writers & Authors	Develop written content for advertisements, books, magazines, movie and television scripts, songs, and online publications.	Journalism and Broadcasting	★★★★★	★	\$32,510 /\$59,270	Bachelor's degree	EAC



# Career Stories



## Ronald Key

Gaston College  
*Broadcasting*

### Q: How did you decide to pursue your occupation?

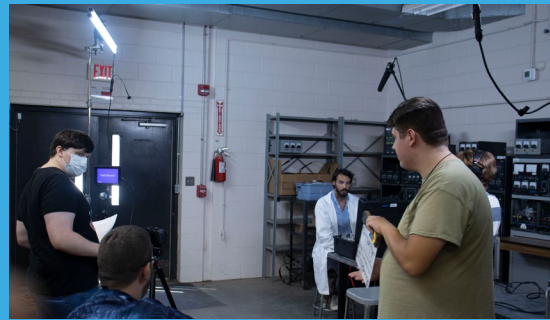
**A:** I decided to pursue Broadcasting because I have a background in music. I have always had a natural talent for music and can play piano, bass guitar, guitar, sing, and play saxophone. While in the program, I developed an interest in camera work and photography. I have been told I have a good eye for shots, and I enjoy taking photographs and filming. I also have learned about script writing and have enjoyed putting some of my ideas on paper. Currently I am working on writing a classic western.

### Q: What do you like about your field?

**A:** I enjoy the hands-on experience I get in the classes and the real-world opportunities that have come my way. Since being involved in the broadcasting program I have done a professional camera shoot and have been working in a radio station as the music assistant and an on-air DJ.

### Q: What advice do you have for people considering your career path?

**A:** My advice I can give people who wish to pursue Broadcasting is to go for it. I am 30 years old, and this will be my third attempt at college. It is never too late to put yourself out there and do something that you love. All it takes is the will to do it. So do not hesitate and take the opportunity because you never know where it will take you.



## Jacob Cox

Western Piedmont Community College  
*Digital Effects and Animation Technology*

### Q: What made you decide to work in Digital Effects and Animation Technology?

**A:** My life-long interest in filmmaking and video production led me to the DEAT program at WPCC where I've been able to pursue my creative interests and further my skillsets.

### Q: What kind of training and education does one need to succeed in your field?

**A:** You need hands-on experience working with animation keyframing, principles of design, and various editing software. Also learning how to work with camera and lighting equipment and working in a collaborative environment. Besides this technical training, the most valuable thing you get when you go to school is the network of people in your field.

### Q: What projects are you working on right now?

**A:** I'm finishing up a series of animated infographics created for the League of Women Voters. Aside from various personal projects — including gearing up for a 48 Hour Film Project — I'm also preparing for an upcoming job that will involve creating two videos for a company, which may include some interviews.



# Business Management & Administration

In North Carolina, we are likely to see new job growth in the Business Management and Administration career cluster in the next decade. Since almost any workplace benefits from strong leadership and organizational support, business management occupations exist in all industries.

Many of us value the peace of mind that comes from knowing that we have other options if we lose our current jobs. More than most clusters, business administration includes careers that move relatively easily from one industry or location to another. Several years ago, the U.S. Bureau of Labor Statistics listed a dozen careers that offer this kind of flexibility. Half of the occupations are in this cluster:

- Customer service representatives
- Secretaries and administrative assistants, except legal, medical, and executive
- General and operations managers
- General office clerks
- Management analysts
- Human resources specialists

Work environments match the functions of specific businesses. While desk jobs with 8-to-5 schedules are typical, business and management workers in industries like transportation and construction may have variable schedules and need to travel to jobsites or work in the outdoors. Educational backgrounds for these jobs range from high school through bachelor's degrees. Places offering employment include — but are not limited to — corporate and regional management offices; federal, state, and local governments; temporary service agencies; banks; and public colleges and universities.

## CAREER RESEARCH

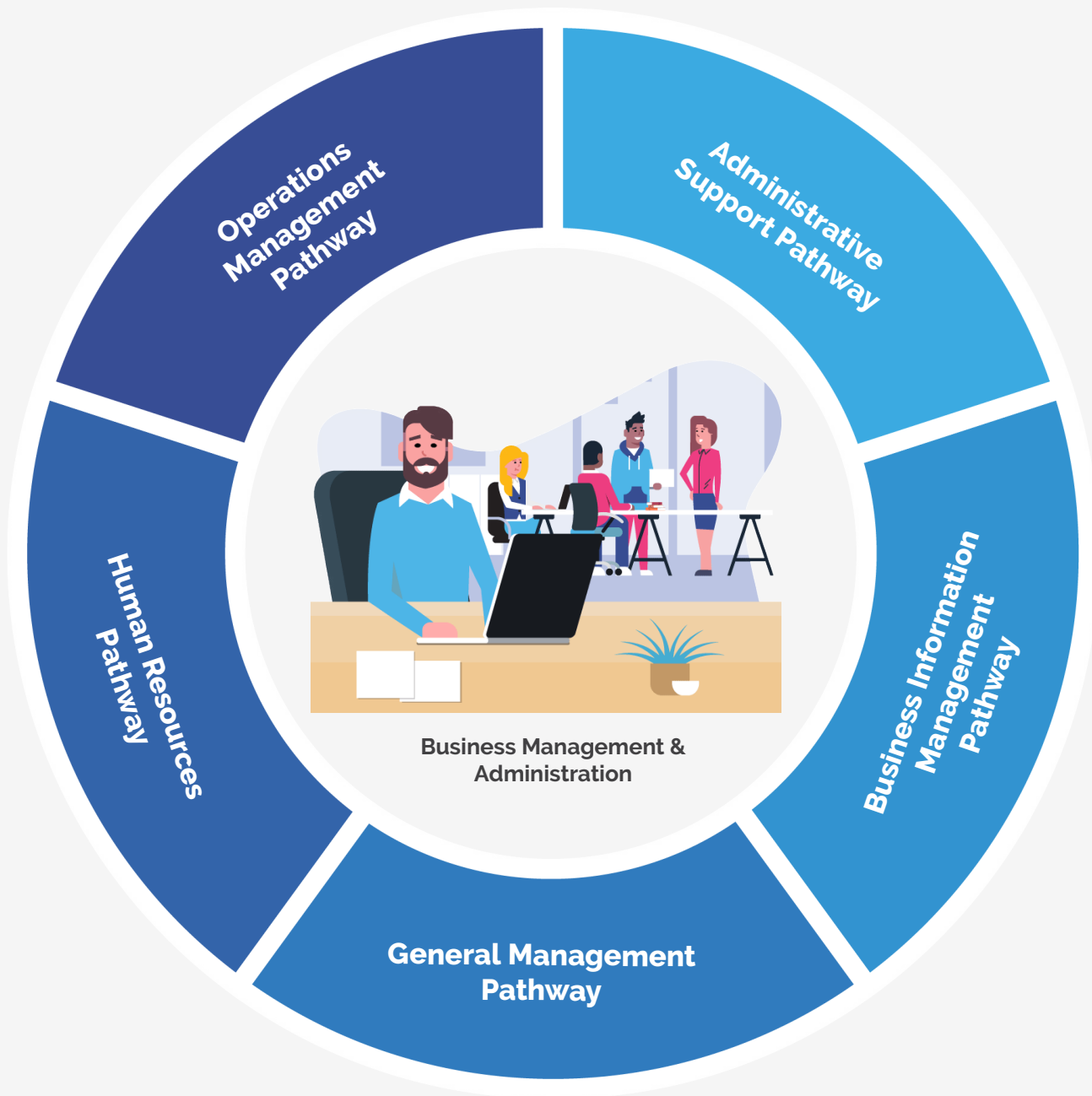
- Association for Talent Development [td.org](http://td.org)
- Business Professionals of America [bpa.org](http://bpa.org)
- Future Business Leaders of America/Phi Beta Lambda [fbla-pbl.org](http://fbla-pbl.org)
- Professionals In Human Resources Association™ [pihra.org](http://pihra.org)
- Project Management Institute® [pmi.org](http://pmi.org)
- DECA [deca.org](http://deca.org)
- Administration Jobs [administrationjobs.com](http://administrationjobs.com)

Find more  
Business  
Management &  
Administration  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Management of Financial Resources
- Management of Material Resources
- Negotiation
- Management of Personnel Resources
- Persuasion
- Systems Evaluation
- Systems Analysis
- Writing
- Service Orientation
- Coordination





## SELECTED OCCUPATIONS

### Administrative Support Pathway

- **Arts, Design, Entertainment, Sports, and Media**  
*Radio Operators.*
- **Computer and Mathematical**  
*Computer Occupations, All Other.*
- **Healthcare Practitioners and Technical**  
*Respiratory Therapy Technicians*
- **Office and Administrative Support**  
*Bookkeeping, Accounting, and Auditing Clerks; Correspondence Clerks; Customer Service Representatives; Data Entry Keyers; Executive Secretaries and Executive Administrative Assistants; File Clerks; First-Line Supervisors of Office and Administrative Support Workers; Human Resources Assistants, Except Payroll and Timekeeping; Information and Record Clerks, All Other; Interviewers, Except Eligibility and Loan; Library Assistants, Clerical; Mail Clerks and Mail Machine Operators, Except Postal Service; Meter Readers, Utilities; New Accounts Clerks; Office and Administrative Support Workers, All Other; Office Clerks, General; Office Machine Operators, Except Computer; Order Clerks; Payroll and Timekeeping Clerks; Postal Service Clerks; Postal Service Mail Carriers; Postal Service Mail Sorters, Processors, and Processing Machine Operators; Procurement Clerks; Receptionists and Information Clerks; Secretaries and Administrative Assistants, Except Legal, Medical, and Executive; Shipping, Receiving, and Traffic Clerks; Stock Clerks and Order Fillers; Switchboard Operators, Including Answering Service; Telephone Operators; Word Processors and Typists.*

### Business Information Management Pathway

- **Management**  
*Computer and Information Systems Managers.*

### General Management Pathway

- **Management**  
*Administrative Services Managers; Chief Executives; Financial Managers; General and Operations Managers; Managers; Transportation, Storage, and Distribution Managers.*

### Human Resources Management Pathway

- **Business and Financial Operations**  
*Compensation, Benefits, and Job Analysis Specialists; Human Resources Specialists; Labor Relations Specialists; Training and Development Specialists.*
- **Management**  
*Compensation and Benefits Managers; Human Resources Managers; Training and Development Managers.*

### Operations Management Pathway

- **Business and Financial Operations**  
*Business Operations Specialists, All Other; Compliance Officers; Fundraisers; Management Analysts; Meeting, Convention, and Event Planners.*
- **Computer and Mathematical**  
*Operations Research Analysts.*
- **Construction and Extraction**  
*Construction and Building Inspectors.*
- **Management**  
*Administrative Services Managers; Industrial Production Managers; Managers, All Other; Purchasing Managers.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Administrative Services	Plan, direct, and coordinate supportive services of an organization. They may keep records and maintain facilities. Depending on organization size, they direct all support services or are one of several specialized administrative managers.	Operations Management	★★★★★	★★★★★	\$62,790 /\$100,560	Bachelor's degree	EC
Bookkeeping, Accounting, & Auditing Clerks	Produce financial records for organizations and check financial records for accuracy.	Administrative Support	★★★★★	★	\$26,110 /\$40,170	Some college, no degree	CE
Compensation, Benefits, & Job Analysis Specialists	Carry out an organization's salary and benefits programs. Evaluate job positions to determine details such as classification and salary.	Human Resources Management	★★★★★	★★★★★	\$41,280 /\$64,450	Bachelor's degree	CE
Computer & Information Systems Managers	Plan, coordinate, and direct computer-related activities in an organization. Help determine the organization's IT (information technology) goals and implement computer systems to meet those goals.	Business Information Management	★★★★★	★★★★★	\$88,710 /\$139,000	Bachelor's degree	ECl
Customer Service Representatives	Handle customer complaints, process orders, and provide information about an organization's products and services.	Administrative Support	★★★★★	★★	\$22,340 /\$35,500	High School +	ESC
Executive Secretaries & Executive Administrative Assistants	Perform routine clerical and organizational tasks.	Administrative Support	★★★★★	★	\$41,660 /\$59,240	High School +	CE
Facilities Managers	Plan, direct, and coordinate supportive services of an organization. They may keep records and maintain facilities. Depending on organization size, they direct all support services or are one of several specialized administrative managers.	Operations Management	★★★★★	★★★★★	\$50,990 /\$94,310	Bachelor's degree	EC
First-Line Supervisors of Office & Administrative Support Workers	Directly supervise and coordinate the activities of clerical and administrative support workers.	Administrative Support	★★★★★	★★	\$34,090 /\$54,240	High School +	ECS
Fundraisers	Organize events and campaigns to raise money and other donations for an organization. May design promotional materials to increase awareness of an organization's work, goals, and financial needs.	Operations Management	★★★★★	★★★★★	\$35,290 /\$56,200	Bachelor's degree	ECA
General & Operations Managers	Plan, direct, or coordinate the operations of organizations. Duties and responsibilities are too diverse and general to be classified in any one area of management or administration.	General Management	★★★★★	★★★★★	\$53,120 /\$110,220	Bachelor's degree	ECS
Human Resources Managers	Plan, direct, and coordinate an organization's administrative functions. Oversee recruiting, interviewing, and hiring of new staff; consult with executives on strategic planning; and serve as a link between management and employees.	Human Resources Management	★★★★★	★★★★★	\$74,570 /\$117,010	Bachelor's degree	ESC
Industrial Production Managers	Oversee the operations of manufacturing and related plants.	Operations Management	★★★★★	★★★	\$67,200 /\$104,630	Bachelor's degree	EC
Management Analysts	Propose ways to improve an organization's efficiency. Advise managers on how to make organizations more profitable through reduced costs and increased revenues.	Operations Management	★★★★★	★★★★★	\$51,980 /\$89,770	Bachelor's degree	IEC
Operations Research Analysts	Use advanced mathematical and analytical methods to help organizations solve problems and make better decisions.	Operations Management	★★★★★	★★★★★	\$53,220 /\$92,720	Bachelor's degree	ICE
Order Clerks	Receive and process incoming orders for materials, merchandise, classified ads, or services such as repairs, installations, or rental of facilities. They usually receive orders via mail, phone, fax, or other electronic means.	Administrative Support	★★★★★	★	\$22,060 /\$34,970	Some college, no degree	CES
Payroll & Timekeeping Clerks	Compile and record employee time and payroll data. They may also calculate employees' time worked, production, and commission. These clerks may compute and post wages and deductions or prepare paychecks.	Administrative Support	★★★★★	★	\$28,700 /\$43,290	High School +	CE
Purchasing Managers	Plan, direct, or coordinate the activities of buyers, purchasing officers, and related workers who are involved in purchasing materials, products, and services.	Operations Management	★★★	★★★	\$73,760 /\$115,040	Bachelor's degree	EC
Training & Development Managers	Plan, direct, and coordinate programs to enhance an organization's employees' knowledge and skills. Oversee a staff of training and development specialists.	Human Resources Management	★★★	★★★★★	\$67,430 /\$118,910	Bachelor's degree	ES
Training & Development Specialists	Help plan, conduct, and administer programs that train employees and improve their skills and knowledge.	Human Resources Management	★★★★★	★★★★★	\$34,080 /\$60,230	Bachelor's degree	SAC





# Career Stories



## Emily Canter

Richmond Community College  
*Administrative Assistant*

### **Q: What does a typical day at work look like for you?**

**A:** I start my day with logging into Teams and opening my emails, I make a list of tasks that need to be completed, such as revising an invoice or submitting information to HUD for approval. I upload any changes I make into NetSuite or just save to TDA OneDrive, then I email copies to administration and applicable employees. My supervisor sends me tasks throughout the day, which usually means amending an assignment for one or more of our consultants. It could also be adjusting a budget entry on a spreadsheet or posting an announcement in SharePoint; it really depends on what is needed at that time. Recently, I have been reviewing resumes for a position we have open and compiling a list of suitable candidates for my supervisor.

### **Q: How/Where did you start in your career?**

**A:** Over 25 years ago, at the age of twenty-one, I worked in a warehouse, which has since closed, assembling furniture. One day I was asked to fill in for a receptionist and answer phones. I ended up never leaving that position and assisted with many other office tasks. This led me to realize I enjoyed this type of position. From that point on, administrative work was the only type of work in which I was interested.

### **Q: Where do you see yourself in five years?**

**A:** Happily in the same position I am in now, but with more responsibilities and to be well versed in my role.



## Jennifer Asbury

Davidson-Davie Community College  
*Human Resources*

### **Q: How did you decide to pursue your occupation?**

**A:** I spent the majority of my life working in restaurant management. I knew that I didn't want to work in food service for the remainder of my career, but that I loved working with employees to train and retain them. I really enjoyed the hiring process. Tasks that seemed mundane to others, such as new hire paperwork and going through resumes, sparked excitement in me. I decided it was time to explore other career paths and went to my local community college website to see what was available. When I discovered Human Resources, I knew 100% that was my calling. It related closely to what I was already doing but would provide new challenges and opportunities that were not present in my current role.

### **Q: What does a typical day at work look like for you?**

**A:** This business is a steady one and realistically sometimes you can't accomplish all you set out to do in a day. However, I spend the first part of my morning wrapping up those leftover to-dos. After that, I check my emails to see what pressing matters need to be handled immediately. Much of my day consists of calling candidates to set up interviews, running background checks, calling references for candidates, setting up drug screenings, creating offer letters, working in partnership with Managers, and much more!



# Education & Training

Lifelong learning is a phrase that we often hear. Finishing high school and other required training is the first step toward getting a job, and keeping our jobs often requires that we continue to update our skills. To meet these ongoing training needs, education options have broadened to include online training. Technology like electronic textbooks, notebooks, and smart boards support classroom innovations while also requiring educators to upgrade their technology skills and teaching techniques.

Most occupations in the Education and Training cluster require at least a bachelor's degree, with many postsecondary teaching professionals holding a doctoral or professional degree. Occupations likely to grow the most over the next 10 years are likely to include elementary and secondary school teachers as well as teacher assistants. College-level health specialties teachers occupy the top position for highest estimated percentage increase in jobs.

Schedules for education workers vary by work setting. Preschool through high school employees work directly with students for approximately eight hours and often devote additional time at home to grading papers and planning lessons. Before and after-school workers' schedules revolve around times when students aren't in class, and coaches may work directly with students for hours beyond the usual class schedule. Industries that tend to offer many jobs for workers in this cluster include public and private schools, colleges and universities, and daycare centers.

## CAREER RESEARCH

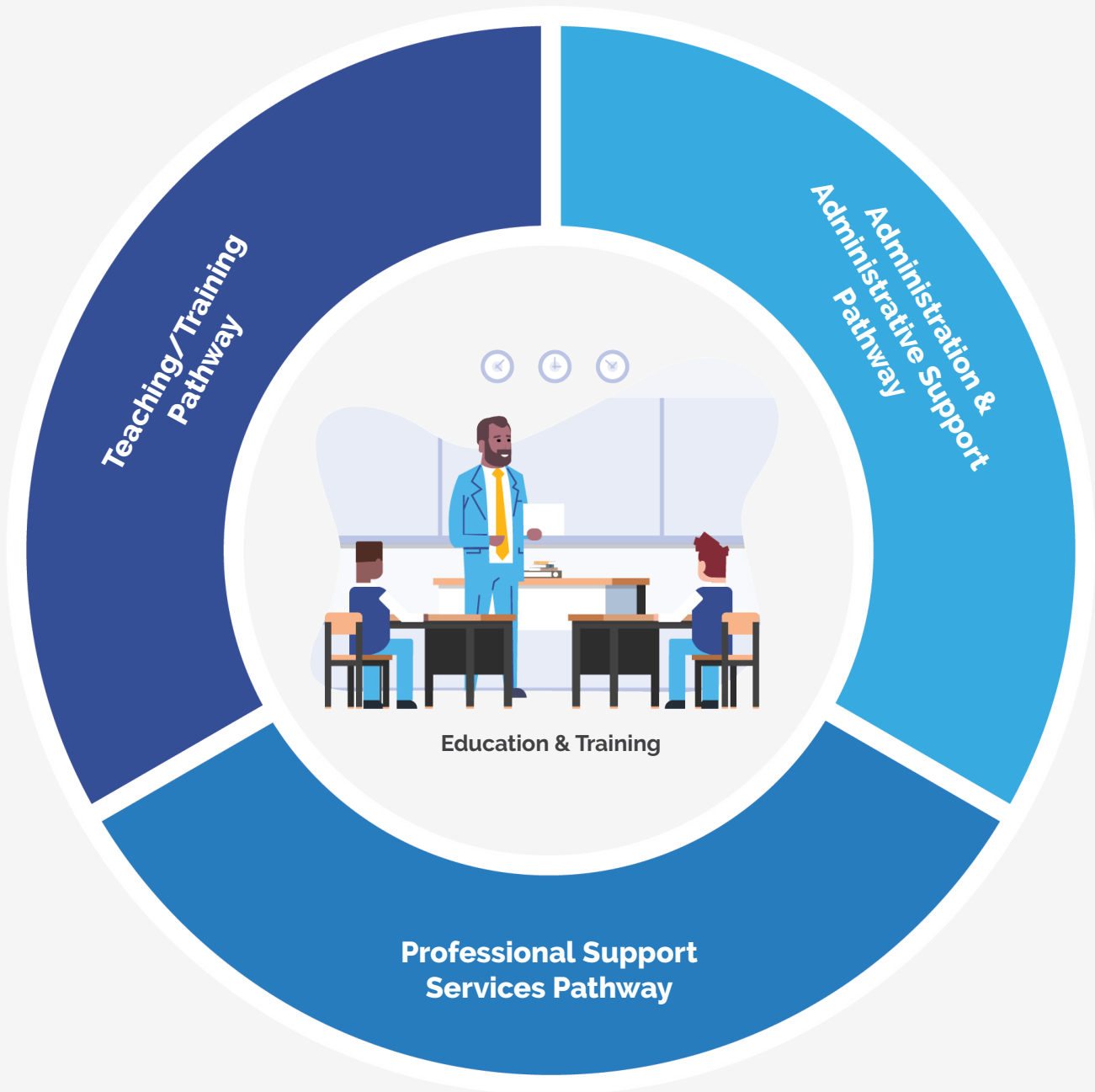
- Association for Career & Technical Education  
[acteonline.org](http://acteonline.org)
- National Coordinating Council for Career & Technical Student Organizations  
[ctsos.org](http://ctsos.org)
- Future Educators Association  
[futureeducators.org](http://futureeducators.org)
- TEACH  
[teach.org](http://teach.org)
- National Association of Special Education Teachers  
[naset.org](http://naset.org)
- National Science Teachers Association  
[nsta.org](http://nsta.org)
- NC Department of Public Instruction  
[ncpublicschools.org](http://ncpublicschools.org)
- NC Community College System  
[nccommunitycolleges.edu](http://nccommunitycolleges.edu)

Find more  
Education  
& Training  
Occupations:





# CAREER PATHWAYS



## CORE SKILLS

- Learning Strategies
- Instructing
- Writing
- Speaking
- Active Learning
- Reading Comprehension
- Active Listening
- Systems Evaluation
- Science
- Monitoring



## SELECTED OCCUPATIONS

### Administration & Administrative Support Pathway

- **Management**

*Education Administrators; Education Administrators, Elementary and Secondary School; Education Administrators, Postsecondary; Education Administrators, Preschool and Childcare Center/Program; Managers.*

### Professional Support Services Pathway

- **Arts, Design, Entertainment, Sports, and Media**

*Interpreters and Translators.*

- **Community and Social Service**

*Educational, Guidance, School, and Vocational Counselors.*

- **Educational Instruction and Library**

*Archivists; Curators; Instructional Coordinators; Librarians; Library Technicians; Museum Technicians and Conservators.*

### Teaching/Training Pathway

- **Arts, Design, Entertainment, Sports, and Media**

*Coaches and Scouts.*

- **Educational Instruction and Library**

*Adult Basic and Secondary Education and Literacy Teachers and Instructors; Agricultural Sciences Teachers, Postsecondary; Anthropology and Archeology Teachers, Postsecondary; Architecture Teachers, Postsecondary; Area, Ethnic, and Cultural Studies Teachers, Postsecondary; Art, Drama, and Music Teachers, Postsecondary; Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary; Biological Science Teachers, Postsecondary; Business Teachers, Postsecondary; Career/Technical Education Teachers, Middle School; Career/Technical Education Teachers, Secondary School; Chemistry Teachers, Postsecondary; Communications*

*Teachers, Postsecondary; Computer Science Teachers, Postsecondary; Criminal Justice and Law Enforcement Teachers, Postsecondary; Economics Teachers, Postsecondary; Education Teachers, Postsecondary; Education, Training, and Library Workers, All Other; Elementary School Teachers, Except Special Education; Engineering Teachers, Postsecondary; English Language and Literature Teachers, Postsecondary; Environmental Science Teachers, Postsecondary; Farm and Home Management Advisors; Foreign Language and Literature Teachers, Postsecondary; Forestry and Conservation Science Teachers, Postsecondary; Geography Teachers, Postsecondary; Graduate Teaching Assistants; Health Specialties Teachers, Postsecondary; History Teachers, Postsecondary; Home Economics Teachers, Postsecondary; Kindergarten Teachers, Except Special Education; Law Teachers, Postsecondary; Library Science Teachers, Postsecondary; Mathematical Science Teachers, Postsecondary; Middle School Teachers, Except Special and Career/Technical Education; Nursing Instructors and Teachers, Postsecondary; Philosophy and Religion Teachers, Postsecondary; Physics Teachers, Postsecondary; Political Science Teachers, Postsecondary; Postsecondary Teachers, All Other; Preschool Teachers, Except Special Education; Psychology Teachers, Postsecondary; Recreation and Fitness Studies Teachers, Postsecondary; Secondary School Teachers, Except Special and Career/Technical Education; Self-Enrichment Education Teachers; Social Sciences Teachers, Postsecondary, All Other; Social Work Teachers, Postsecondary; Sociology Teachers, Postsecondary; Special Education Teachers, All Other; Special Education Teachers, Kindergarten and Elementary School (#); Special Education Teachers, Middle School; Special Education Teachers, Preschool; Special Education Teachers, Secondary School; Teacher Assistants; Teachers and Instructors, All Other; Vocational Education Teachers, Postsecondary.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Career/Technical Education Teachers, Middle School	Instruct students in various technical and vocational subjects, such as auto repair, healthcare, and culinary arts.	Teaching/Training	★★★	★★	\$41,100 / \$55,270	Bachelor's degree	SAC
Chemistry Teachers, Postsecondary	Teach postsecondary students in courses about the chemical and physical properties and compositional changes of substances.	Teaching/Training	★★★	★★★	\$47,250 / \$74,120	Doctoral or professional degree	SIR
Coaches & Scouts	Teach athletes the skills they need to succeed at their sport. Look for new players, evaluating their skills and chances for success at college, amateur, or professional levels.	Teaching/Training	★★★★★	★★★★★	\$18,450 / \$38,390	Bachelor's degree	SRE
Curators	Oversee collections of historic items or artwork. Museum technicians and conservators prepare or restore items in museum collections.	Professional Support Services	★★	★★★★	\$36,110 / \$46,400	Master's degree	EC
Education Administrators, Elementary & Secondary School	Responsible for managing all school operations. Oversee daily school activities, the curriculum, and teachers and other school staff to provide a safe, productive learning environment.	Administration and Administrative Support	★★★★★	★★	\$54,510 / \$74,360	Master's degree	ESC
Education Administrators, Preschool & Childcare Center/ Program	Direct and lead staff, oversee daily activities, and prepare plans and budgets. Responsible for all aspects of the program.	Administration and Administrative Support	★★★	★★★	\$31,830 / \$45,460	Bachelor's degree	SEC
Educational, Guidance, School, & Vocational Counselors	Counsel individuals and provide group educational and career guidance services.	Professional Support Services	★★★★★	★★★	\$35,730 / \$53,330	Master's degree	S
Elementary School Teachers, Except Special Education	Prepare younger students for future schooling by teaching them basic subjects such as math and reading.	Teaching/Training	★★★★★	★★	\$35,630 / \$49,300	Bachelor's degree	SAC
Health Specialties Teachers, Postsecondary	Teach courses in health specialties fields such as dentistry, laboratory technology, medicine, pharmacy, public health, therapy, and veterinary medicine.	Teaching/Training	★★★★★	★★★★★	\$40,400 / \$107,870	Doctoral or professional degree	SI
Interpreters & Translators	Convert information from one language into another language.	Professional Support Services	★★★★	★★★★★	\$29,320 / \$40,920	Bachelor's degree	AS
Library Technicians	Assist librarians by helping readers use library catalogs, databases, and indexes to locate books and other materials and by answering questions about standard references.	Professional Support Services	★★★★	★	\$25,380 / \$36,680	Postsecondary nondegree award	CSE
Middle School Teachers, Except Special & Career/ Technical Education	Help students build on elementary school fundamentals and prepare them for the more difficult curriculum they will face in high school. Usually educate students in sixth through eighth grades.	Teaching/Training	★★★★★	★★	\$37,010 / \$50,450	Bachelor's degree	SA
Museum Technicians & Conservators	Oversee collections of historic items or artwork. Museum technicians and conservators prepare or restore items in museum collections.	Professional Support Services	★★	★★★★	\$19,120 / \$35,100	Bachelor's degree	RA
Nursing Instructors & Teachers, Postsecondary	Demonstrate and teach patient care in classroom and clinical units to postsecondary nursing students. May be primarily engaged in teaching or do a combination of teaching and research.	Teaching/Training	★★★	★★★★★	\$48,350 / \$68,150	Doctoral or professional degree	SI
Preschool Teachers, Except Special Education	Educate and care for children, usually ages three to five, who have not yet entered kindergarten. Teach reading, writing, science, and other subjects in a way that young children can understand.	Teaching/Training	★★★★★	★★★★★	\$19,660 / \$28,260	Associate's degree	SA
Self-Enrichment Education Teachers	Teach courses other than those that lead to an occupational credential. Courses may include self-improvement, non-vocational, and nonacademic subjects. Teaching may or may not take place in a traditional educational institution.	Teaching/Training	★★★★★	★★★★★	\$17,690 / \$29,670	High School +	SAE
Special Education Teachers, Preschool	Work with preschool aged students who have a wide range of learning, mental, emotional, and physical disabilities.	Teaching/Training	★★	★★★	\$34,770 / \$54,060	Bachelor's degree	SA
Substitute Teachers, Short-Term	Teach students on a short-term basis as a temporary replacement for a regular classroom teacher, typically using the regular teacher's lesson plan.	Teaching/Training	★★★★	★★★	\$19,980 / \$23,610	Bachelor's degree	SI
Teaching Assistants, Except Postsecondary	Assist a preschool, elementary, middle, or secondary school teacher with instructional duties where a teacher has primary responsibility for the design and implementation of educational programs and services.	Teaching/Training	★★★★	★★★★	\$19,970 / \$24,630	Some college, no degree	SC



# Career Stories



## Ashli Elder

Catawba Valley Community College  
*Early Childhood Support Coordinator*

### Q: What made you decide to work in your field?

**A:** I was born into a family of many educators. I can't remember ever wanting to be anything other than a teacher and a mom. I love to learn new things and my passion is inspiring others to learn. When I enrolled in college, I thought I wanted to teach in high school; after getting married and becoming a mother, however, I began working at Head Start as a bus monitor. I quickly realized that early childhood education was my calling and decided to enroll at Catawba Valley Community College to further my education. CVCC launched my journey to become an early childhood educator!

### Q: What do you like about your chosen career path?

**A:** The best aspect of my career is witnessing others, whether children, families, or fellow early childhood educators, grow and learn. I sometimes get to contribute to and support that growth and learning.

### Q: What advice do you have for people considering your career path?

**A:** Being an early childhood educator is impactful and the field is full of possibilities. There are early childhood educators who teach in the classroom, partner with families through home visiting programs, advocate for our field, or teach in higher education. Individuals can also develop and implement programs for children birth to five and their families, train and support other early childhood educators, assess quality in early childhood classrooms, administer play therapies, support children with special needs and their families, and so much more!



## Andrew Leih

Asheville-Buncombe Technical Community College  
*Flight Instructor*

### Q: How did you decide to pursue your occupation?

**A:** I am third-generation pilot. Both of my grandfathers, my dad and my aunt are pilots. I got interested at a young age. One day when we lived in Texas, my father took me out of elementary school, and took me on a trip to St. Louis. Ever since then I have been gearing toward getting in the plane. When I was 15, I started training on a glider.

### Q: What's the best part of your job?

**A:** I am flight instructor and adjunct instructor while earning my hours to become a commercial pilot. The best part of that is seeing the student succeed when they get that lightbulb moment of understanding. As a pilot, I love the freedom of being able to go wherever you want and to have a different way to traverse the land.

### Q: What kind of training and education do you need to get this job?

**A:** Airlines want you have to at least a two-year associate degree. For the flying, first you have to get private pilot certificate. You can fly friends and family and yourself with that. Once you get an instrument rating, you can fly in clouds. The next step is Commercial Single Engine Land. You can do jobs like crop dusting, banner flying, aerial photography, and pipeline survey work. Then you can become a certified flight instructor or get the Commercial Multiple Engine Land, which is the same as single except the plane has more than one engine.





# Finance

Money is an essential element in each of our lives. We entrust our financial well-being to people who safeguard bank accounts, provide loans, insure cars and homes, and help us make wise investments. Their math skills must be strong, and they must be precise, paying close attention to detail and keeping accurate records. Workers also need good communication skills so that they can respond to questions and clearly explain information. They must be service-oriented and sometimes work with people who are under stress about their finances.

Finance jobs exist in settings that range from banks to tax return centers to private offices. Most large organizations like hospitals have finance employees. While financial specialists usually have an 8-to-5 schedule, some workers' schedules must accommodate their clients' after-work hours. Tax preparers have intense work times from the beginning of January until April 15.

In North Carolina, most finance occupations require a high school education or a bachelor's degree. Occupations within this cluster with the greatest predicted growth include personal financial advisors, loan interviewers and clerks, and loan officers. The finance and insurance industry has one of the highest average weekly wages when compared with other industries. Likely places to find jobs include banks, corporate management offices, insurance agencies, insurance underwriting companies, and offices of certified public accountants.

## CAREER RESEARCH

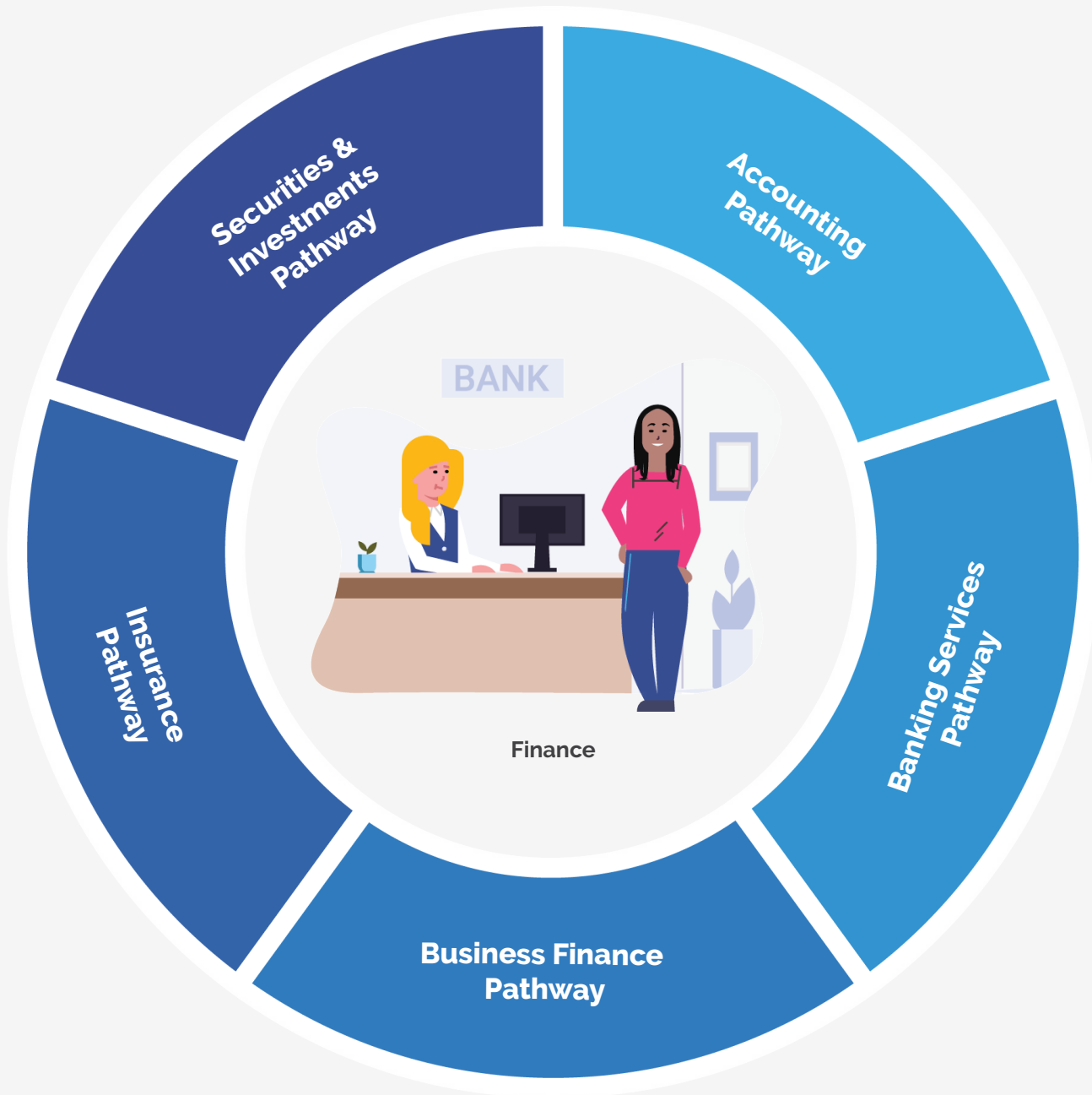
- National Association of Business Economics  
[nabe.com](http://nabe.com)
- American Bankers Association  
[www.aba.com](http://www.aba.com)
- National Coordinating Council for Career & Technical Student Organizations  
[ctsos.org](http://ctsos.org)
- Future Business Leaders of America/Phi Beta Lambda  
[fbla-pbl.org](http://fbla-pbl.org)
- DECA  
[deca.org](http://deca.org)
- Insurance Education for Future Leaders  
[investprogram.org](http://investprogram.org)
- National Association of Personal Finance Advisors  
[napfa.org](http://napfa.org)
- CFA Institute  
[www.cfainstitute.org](http://www.cfainstitute.org)

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## CAREER PATHWAYS



## CORE SKILLS

- Management of Financial Resources
- Mathematics
- Negotiation
- Programming Reading
- Comprehension
- Persuasion
- Active Listening
- Writing
- Critical Thinking
- Judgment and Decision Making



## SELECTED OCCUPATIONS

### Accounting Pathway

- **Business and Financial Operations**  
*Accountants and Auditors.*

### Banking Services Pathway

- **Business and Financial Operations**  
*Credit Analysts; Loan Officers.*
- **Office and Administrative Support**  
*Bill and Account Collectors; Credit Authorizers, Checkers, and Clerks; Financial Clerks, All Other; Loan Interviewers and Clerks; Tellers.*

### Business Finance Pathway

- **Business and Financial Operations**  
*Budget Analysts; Financial Analysts; Tax Preparers.*
- **Management**  
*Financial Managers.*

### Insurance Pathway

- **Business and Financial Operations**  
*Claims Adjusters, Examiners, and Investigators; Insurance Appraisers, Auto Damage; Insurance Underwriters.*
- **Computer and Mathematical**  
*Actuaries.*
- **Office and Administrative Support**  
*Insurance Claims and Policy Processing Clerks.*
- **Sales and Related**  
*Insurance Sales Agents*

### Securities & Investments Pathway

- **Business and Financial Operations**  
*Financial Analysts; Financial Specialists, All Other; Personal Financial Advisors.*
- **Office and Administrative Support**  
*Brokerage Clerks.*
- **Sales and Related**  
*Securities, Commodities, and Financial Services Sales Agents.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/Median Wages	Minimum Education	Interest Areas
Accountants & Auditors	Prepare and examine financial records. Ensure that taxes are paid properly and on time. Assess financial operations and work to help ensure that organizations run efficiently.	Accounting	★★★★★	★★★★	\$47,110 / \$72,900	Bachelor's degree	EC
Actuaries	Use mathematics, statistics, and financial theory to analyze the economic costs of risk and uncertainty.	Insurance	★★	★★★★★	\$70,850 / \$125,070	Bachelor's degree	ECS
Bill & Account Collectors	Try to recover payment on overdue bills. Negotiate repayment plans with debtors and help them find solutions to make paying their overdue bills easier.	Banking Services	★★★★★	★	\$26,230 / \$37,040	High School +	ECS
Brokerage Clerks	Provide services related to purchasing, selling, or holding of stocks and bonds. Write orders for stock purchases or sales, compute transfer taxes, track stock price changes, and keep records.	Securities & Investments	★★★	★	\$41,470 / \$53,160	High School +	CIE
Budget Analysts	Help public and private institutions organize their finances. Prepare budget reports and monitor institutional spending.	Business Finance	★★★	★★	\$47,020 / \$71,470	Bachelor's degree	CEI
Claims Adjusters, Examiners, & Investigators	Evaluate insurance claims. Decide whether an insurance company must pay a claim, and if so, how much.	Insurance	★★★★★	★★	\$40,750 / \$63,850	High School +	ECS
Credit Analysts	Evaluate credit data and financial statements of individuals or firms to determine level of risk involved in extending credit or lending money. Prepare credit reports for use in decision making.	Banking Services	★★★	★★	\$54,520 / \$88,100	Bachelor's degree	CES
Credit Authorizers, Checkers, & Clerks	Authorize credit charges against customers' accounts or investigate the history and credit standing of individuals or business establishments applying for credit.	Banking Services	★★	★	\$32,630 / \$44,860	High School +	CES
Financial Managers	Responsible for the financial health of an organization. Produce financial reports, direct investment activities, and develop strategies and plans for the organization's long-term financial goals.	Business Finance	★★★★★	★★★★★	\$73,720 / \$140,000	Bachelor's degree	CE
Insurance Appraisers, Auto Damage	Evaluate automotive insurance claims.	Insurance	★	★★	\$46,410 / \$72,360	Postsecondary nondegree award	CEI
Insurance Claims & Policy Processing Clerks	Handle new insurance policies, changes to existing policies, and claims forms. Obtain information from customers to make sure that claims and application forms are accurate and complete.	Insurance	★★★★★	★★★	\$30,650 / \$41,660	High School +	CRE
Insurance Sales Agents	Help insurance companies get new business by contacting potential customers and selling one or more types of insurance. Explain various insurance policies and help clients choose plans that suit them.	Insurance	★★★★★	★★★★★	\$27,970 / \$50,340	High School +	CEI
Insurance Underwriters	Review individual applications for insurance to evaluate degree of risk involved and determine whether to accept applications.	Insurance	★★★	★★	\$44,480 / \$71,720	Bachelor's degree	CE
Loan Interviewers & Clerks	Interview people to get and verify personal and financial information needed for loan applications. Prepare documents that go to the appraiser and are issued at the closing of a loan.	Banking Services	★★★★★	★★	\$33,930 / \$46,150	High School +	CEI
Loan Officers	Evaluate, authorize, or recommend approval of loan applications for people and businesses.	Banking Services	★★★★★	★★★	\$37,100 / \$68,330	Bachelor's degree	CE
Personal Financial Advisors	Give financial advice to people. Help with investments, taxes, and insurance decisions.	Securities & Investments	★★★★★	★★★★★	\$43,420 / \$97,750	Bachelor's degree	CE
Securities, Commodities, & Financial Services Sales Agents	Connect buyers and sellers in financial markets. Sell securities to individuals, advise companies in search of investors, and conduct trades.	Securities & Investments	★★★★★	★★★★★	\$37,650 / \$65,500	Bachelor's degree	CE
Tax Preparers	Prepare tax returns for individuals or small businesses.	Business Finance	★★★★★	★★★	\$17,050 / \$23,860	High School +	CE
Tellers	Accurately process routine transactions at a bank, including cashing checks, depositing money, and collecting loan payments.	Banking Services	★★★★★	★	\$26,720 / \$34,900	High School +	CES



# Career Stories



**Amanda Guevara**

Isothermal Community College  
*Accounting*

**Q: What made you interested in this career path?**

**A:** I took my first accounting class when I was in high school, and I fell in love with the field. Accounting just makes sense to me, and there is always something new to learn. I still get a feeling of immense satisfaction when there is an issue with a report, and I am able to research and find the issue and take appropriate action to correct it! It is an exciting field to work in, with opportunities in a wide variety of areas.

**Q: Why is your job important?**

**A:** My job is important because charter schools are publicly funded and have very stringent regulations that they must follow, and they must report their financial activities to the North Carolina Department of Public Instruction on a monthly basis. Our company ensures that our clients are in compliance with all regulations, while assisting them with the financial management of their charter schools.

**Q: Where did you get your training/education?**

**A:** I completed my associate degree at Isothermal Community College, and my bachelor's and master's degrees at Gardner-Webb University.

**Q: What does your company do?**

**A:** My employer is the largest provider of financial services and student information services to charter schools in the state of North Carolina. I work in the financial services division, and we provide accounting services such as processing payrolls, accounts receivable and accounts payable, and assisting our clients with managing their state and federal budgets. We ensure that our clients are in compliance with all regulations mandated by the North Carolina Department of Public Instruction.

**Q: How did you get your current job?**

**A:** While I was a student at Isothermal Community College my current employer reached out to the college seeking qualified candidates and one of my instructors thought I would be a good fit. I was seeking a job in the accounting field so this turned out to be the perfect opportunity for me. One of my instructors also helped me with writing my resume and preparing for my interview. Isothermal Community College provided me with the opportunity to earn my associate degree and was also instrumental in me gaining access to a career that I love. I am so grateful to the college and all my instructors there.





# Government & Public Administration

Government ensures that citizens receive vital services that may not otherwise be available to them. Government employees provide regulatory oversight and support for transportation, public safety, healthcare, education, utilities, and courts. In North Carolina, most government employees work for state or local governments. Some people also work for the federal government. Occupations in government mirror careers found in almost every industry. They range from many business, management, and administrative occupations to jobs related to construction and transportation.

Public work sector jobs typically require the same educational requirements as private sector occupations. Government employees' work schedules and environments depend on workers' specific jobs and — at times — on the size and level of government. This cluster includes desk jobs with regular eight-hour workdays as well as outdoor work with varying schedules. While hiring practices for most government workers are like those in other sectors, some public sector employees are elected or appointed to their jobs.

## CAREER RESEARCH

- Federal Jobs Network  
[federaljobs.net/student.htm](https://federaljobs.net/student.htm)
- American Planning Association  
[planning.org/join/students](https://planning.org/join/students)
- National Coordinating Council for Career and Technical Student Organizations  
[ctsos.org](https://ctsos.org)
- Junior Achievement  
[jausa.ja.org](https://jausa.ja.org)
- North Carolina State Government Jobs  
[nc.gov/jobs](https://nc.gov/jobs)
- International City/County Management Association  
[icma.org](https://icma.org)

Find more  
Government  
& Public  
Administration  
Occupations:







## CAREER PATHWAYS



## CORE SKILLS

- Writing
- Mathematics
- Systems Analysis
- Reading Comprehension
- Speaking
- Negotiation
- Programming
- Systems Evaluation
- Critical Thinking
- Active Listening



## SELECTED OCCUPATIONS

### Governance Pathway

- **Business and Financial Operations**  
*Compliance Officers; Financial Examiners.*
- **Management**  
*Legislators.*
- **Transportation and Material Moving**  
*Transportation Inspectors*

### National Security Pathway

- **Architecture and Engineering**  
*Engineering Technicians, Except Drafters, All Others.*
- **Protective Service**  
*Transportation Security Screeners.*
- **Military Specific**  
*Air Crew Members; Air Crew Officers; Aircraft Launch and Recovery Officers; Aircraft Launch and Recovery Specialists; Armored Assault Vehicle Crew Members; Armored Assault Vehicle Officers; Artillery and Missile Crew Members; Artillery and Missile Officers; Command and Control Center Officers; Command and Control Center Specialists; First-Line Supervisors of Air Crew Members; First-Line Supervisors of All Other Tactical Operations Specialists; First-Line Supervisors of Weapons Specialists/Crew Members; Infantry; Infantry Officers; Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members, All Other; Military Officer Special and Tactical Operations Leaders, All Other; Special Forces; Special Forces Officers.*

### Planning Pathway

- **Computer and Mathematical**  
*Mathematical Technicians.*
- **Life, Physical, and Social Science**  
*Urban and Regional Planners.*
- **Office and Administrative Support**  
*Statistical Assistants.*

### Public Management & Administration Pathway

- **Management**  
*Emergency Management Directors; Postmasters and Mail Superintendents.*
- **Office and Administrative Support**  
*Court, Municipal, and License Clerks; Eligibility Interviewers, Government Programs.*

### Regulation Pathway

- **Construction and Extraction**  
*Construction and Building Inspectors.*
- **Farming, Fishing, and Forestry**  
*Agricultural Inspectors.*
- **Healthcare Practitioners and Technical**  
*Occupational Health and Safety Specialists; Occupational Health and Safety Technicians.*

### Revenue & Taxation Pathway

- **Business and Financial Operations**  
*Appraisers and Assessors of Real Estate; Tax Examiners and Collectors, and Revenue Agents.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Compliance Officers	Work in a variety of settings to make sure that laws, contracts, regulations, and policies are followed.	Governance	★★★★★	★★★★	\$39,650 / \$64,310	Bachelor's degree	CE
Construction & Building Inspectors	Make sure that construction meets local and national building codes and ordinances, zoning regulations, and contract specifications.	Regulation	★★★★	★★	\$38,610 / \$58,740	High School +	RCI
Court, Municipal, & License Clerks	Perform clerical duties for courts of law, municipalities, or governmental licensing agencies and bureaus. Duties depend in part on the function of the governmental organization where they work.	Public Management and Administration	★★★★	★★	\$28,500 / \$38,160	High School +	CES
Eligibility Interviewers, Government Programs	Decide whether people who apply to receive government assistance like welfare, unemployment benefits, and social security are eligible for that assistance.	Public Management and Administration	★★★★	★★★	\$29,810 / \$38,720	High School +	SCE
Emergency Management Directors	Prepare plans and procedures for responding to natural disasters or other emergencies. They also help lead the response during and after emergencies.	Public Management and Administration	★	★★★	\$47,400 / \$64,300	Bachelor's degree	SE
Financial Examiners	Make sure that financial institutions and transactions meet legal requirements. Review balance sheets, evaluate the risk level of loans, and assess bank management.	Governance	★★★★★	★★★★★	\$35,070 / \$67,350	Bachelor's degree	EC
Occupational Health & Safety Specialists	Inspect workplaces to make sure that businesses follow regulations on safety, health, and the environment. Design programs to prevent disease or injury to workers and damage to the environment.	Regulation	★★★★	★★★	\$45,600 / \$69,220	Bachelor's degree	IC
Occupational Health & Safety Technicians	Collect data on and analyze many types of work environments and work procedures.	Regulation	★★	★★★	\$34,650 / \$53,630	High School +	CR
Postmasters & Mail Superintendents	Plan, direct, or coordinate operational, administrative, management, and supportive services of a U.S. post office. May coordinate postal and related workers' activities in assigned post office.	Public Management and Administration	★★	★	\$69,200 / \$79,330	High School +	ECS
Property Appraisers & Assessors	Estimate the value of land and the buildings on the land usually before it is sold, mortgaged, taxed, insured, or developed.	Revenue and Taxation	★★★★	★★★	\$35,610 / \$60,440	Bachelor's degree	ECR
Tax Examiners & Collectors, & Revenue Agents	Determine tax liability or collect taxes from individuals or business firms according to prescribed laws and regulations.	Revenue and Taxation	★★★★	★	\$37,660 / \$56,520	Bachelor's degree	CE
Transportation Inspectors	Look over equipment or goods in connection with the safe transport of cargo or people in all modes of transport.	Governance	★★	★★	\$30,630 / \$83,550	High School +	RCI
Transportation Security Screeners	Conduct screening of passengers, baggage, or cargo to make sure they comply with Transportation Security Administration (TSA) regulations. TSA screeners may operate basic security equipment such as x-ray machines and hand wands at screening checkpoints	National Security	★★★★	★	\$35,810 / \$40,960	High School +	REC
Urban & Regional Planners	Develop comprehensive plans and programs for use of land and physical facilities of jurisdictions such as towns, cities, counties, and metropolitan areas.	Planning	★★★★	★★★	\$43,740 / \$64,560	Master's degree	IEA



# Career Stories



## Ethan M. Gardner

Forsyth Technical Community College  
*Economic and Statistical Analyst*

### **Q: How did you decide to pursue your occupation? / What made you decide to work in your field?**

**A:** It took some fine-tuning. I went to community college to pursue an accounting degree. After taking a few accounting classes at Forsyth Tech, I decided that it was not for me and changed my major to Associate in Arts. When transferring to UNC Pembroke, I chose to be a finance major. Upon taking an economics class and working as a research assistant in college, I enjoyed economic analysis and decided to pursue that as a career.

### **Q: What do you like about your job?**

**A:** I like being the first to see how NC's labor market is doing, and then watch the news about the economy and say, "hey, that is the data I help create."

### **Q: What does a typical day at work look like for you?**

**A:** A typical day for me is finding and verifying outliers in the data. You can also find me writing new codes to automate some of our processes and answering any questions that might arise from the QCEW dataset.

### **Q: Where did you get your training/education?**

**A:** I went to R.J. Reynolds high school; during that time, I did dual enrollment at Forsyth Tech. I transferred to UNC Pembroke to get my B.S.B.A. with a double concentration in Finance & Economics where I also did the dual enrollment program and pursued an M.B.A. with a concentration in Business Analytics.

Community college helped me explore different majors without breaking the bank. Especially in my situation, I was able to get ahead by taking advantage of the dual enrollment program, which offers free college to high school students.

### **Q: What are your future career goals?**

**A:** I want to become an economist before settling down as a professor at a university.

### **Q: What advice do you have for people considering your career path?**

**A:** Be curious and open to many perspectives. Learn how to code and understand the fundamentals of statistics. The rest you can learn along the way.



# Health Science

Where do medical technologies and human touch intersect? They meet within the Health Science career cluster, which is a North Carolina and national growth industry. As the number of Americans over age 65 has grown and as more people survive serious injuries and other health issues, the need for healthcare has increased. If you want to work in a cluster that has strong job growth, this cluster may be for you. It is expected to include the greatest number of new jobs in North Carolina over the next 10 years and about one-third of the state's "hot jobs."

Hospitals or doctors' offices usually come to mind first when we think about healthcare workplaces, but home health care organizations and nursing homes also employ workers in this cluster. Some employees in this industry have 8-to-5 schedules, while others work less traditional shifts.

If you're thinking about a healthcare career, many jobs require good math and science skills. Jobs in this industry include a wide variety of educational backgrounds, ranging from medical degrees to many jobs that require less than four years of college.

## CAREER RESEARCH

- Council on Education for Public Health  
[ceph.org](http://ceph.org)
- Academy of Nutrition and Dietetics  
[eatright.org](http://eatright.org)
- Johnson & Johnson/Discovering Nursing  
[discovernursing.com](http://discovernursing.com)
- Association of University Programs in Health Administration  
[aupha.org/resourcecenter/futurestudents](http://aupha.org/resourcecenter/futurestudents)
- HOSA – Future Health Professionals  
[hosa.org](http://hosa.org)

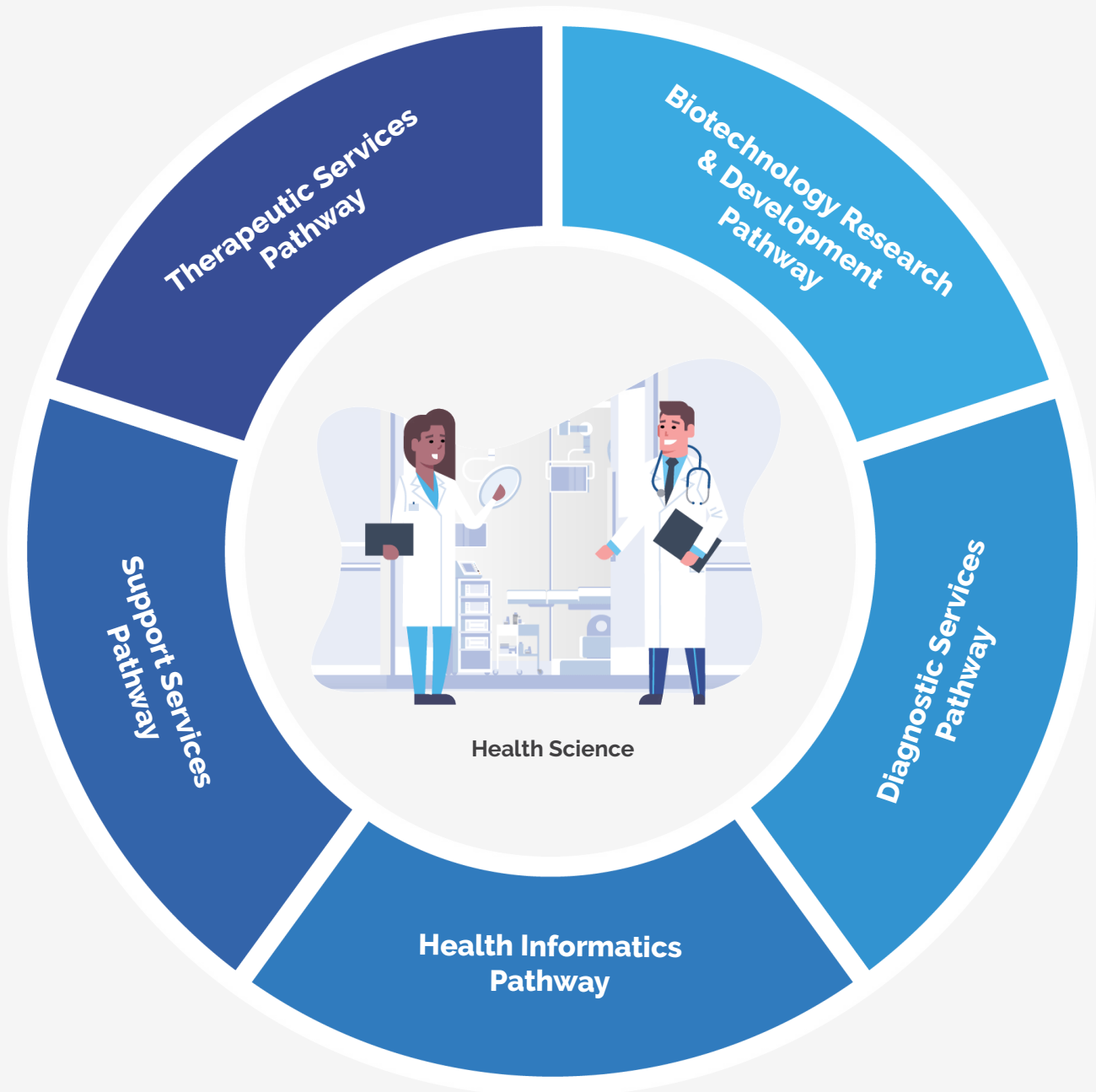
Find more  
Health  
Science  
Occupations:







## CAREER PATHWAYS



## CORE SKILLS

- Science
- Service Orientation
- Social Perceptiveness
- Instructing
- Active Learning
- Reading Comprehension
- Learning Strategies
- Active Listening
- Writing
- Judgment and Decision Making



## SELECTED OCCUPATIONS

### Biotechnology Research & Development Pathway

- **Architecture and Engineering**  
*Biomedical Engineers.*
- **Life, Physical, and Social Science**  
*Medical Scientists, Except Epidemiologists.*

### Diagnostic Services Pathway

- **Healthcare Practitioners and Technical**  
*Cardiovascular Technologists and Technicians; Diagnostic Medical Sonographers; Health Technologists and Technicians, All Other; Healthcare Practitioners and Technical Workers, All Other; Magnetic Resonance Imaging Technologists; Medical and Clinical Laboratory Technicians; Medical and Clinical Laboratory Technologists; Nuclear Medicine Technologists; Radiologic Technologists; Respiratory Therapy Technicians; Veterinary Technologists and Technicians.*
- **Life, Physical, and Social Science**  
*Epidemiologists.*

### Health Informatics Pathway

- **Healthcare Practitioners and Technical**  
*Medical Records and Health Information Technicians.*
- **Healthcare Support**  
*Medical Transcriptionists.*
- **Office and Administrative Support**  
*Medical Secretaries*

### Support Services Pathway

- **Healthcare Support**  
*Healthcare Support Workers, All Other; Medical Equipment Preparers; Orderlies; Pharmacy Aides; Phlebotomists; Veterinary Assistants and Laboratory Animal Caretakers.*
- **Management**  
*Medical and Health Services Managers.*

### Therapeutic Services Pathway

- **Healthcare Practitioners and Technical**  
*Anesthesiologists; Athletic Trainers; Audiologists; Chiropractors; Dental Hygienists; Dentists, All Other Specialists; Dentists, General; Dietetic Technicians; Dietitians and Nutritionists; Exercise Physiologists; Family and General Practitioners; Genetic Counselors; Health Diagnosing and Treating Practitioners, All Other; Healthcare Practitioners and Technical Workers, All Other; Hearing Aid Specialists; Internists, General; Licensed Practical and Licensed Vocational Nurses; Medical Records and Health Information Technicians; Nurse Anesthetists; Nurse Midwives; Nurse Practitioners; Obstetricians and Gynecologists; Occupational Therapists; Ophthalmic Medical Technicians; Opticians, Dispensing; Optometrists; Oral and Maxillofacial Surgeons; Orthodontists; Orthotists and Prosthetists; Pediatricians, General; Pharmacists; Pharmacy Technicians; Physical Therapists; Physician Assistants; Physicians and Surgeons, All Other; Podiatrists; Prosthodontists; Psychiatric Technicians; Psychiatrists; Radiation Therapists; Recreational Therapists; Registered Nurses; Respiratory Therapists; Respiratory Therapy Technicians; Speech-Language Pathologists; Surgeons; Surgical Technologists; Therapists, All Other; Veterinarians.*
- **Healthcare Support**  
*Dental Assistants; Home Health Aides; Medical Assistants; Nursing Assistants; Occupational Therapy Aides; Occupational Therapy Assistants; Physical Therapist Aides; Physical Therapist Assistants; Psychiatric Aides.*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Athletic Trainers	Specialize in preventing, diagnosing, and treating muscle and bone injuries and illnesses.	Therapeutic Services	★★★	★★★★★	\$34,270 / \$46,350	Bachelor's degree	SRI
Cardiovascular Technologists & Technicians	Operate specialized equipment to conduct tests that help doctors analyze and diagnose heart and lung conditions. May assist physicians and surgeons during surgical procedures.	Diagnostic Services	★★★	★★★★	\$33,050 / \$64,440	Associate's degree	RIS
Dental Hygienists	Clean teeth, examine patients for signs of oral diseases such as gingivitis, and provide other preventative dental care. Educate patients on ways to improve and maintain good oral health.	Therapeutic Services	★★★★	★★★	\$54,620 / \$72,020	Associate's degree	SRC
Diagnostic Medical Sonographers	Operate special imaging equipment to create images or conduct tests that help physicians assess and diagnose medical conditions.	Diagnostic Services	★★★	★★★★★	\$54,010 / \$70,400	Associate's degree	ISR
Home Health & Personal Care Aides	Help people who have disabilities, chronic illnesses, or cognitive impairments. They also may care for and assist people who are elderly, convalescing, or who have disabilities perform daily living activities at the person's home or in a care facility.	Therapeutic Services	★★★★★	★★★★★	\$17,360 / \$22,340	High School +	SR
Licensed Practical & Licensed Vocational Nurses	Provide basic medical care, working under the direction of registered nurses and doctors.	Therapeutic Services	★★★★★	★★★	\$36,530 / \$47,080	Postsecondary nondegree award	SR
Magnetic Resonance Imaging Technologists	Perform diagnostic imaging examinations on patients. MRI technologists operate magnetic resonance imaging (MRI) scanners to create diagnostic images.	Diagnostic Services	★★	★★★★	\$54,510 / \$70,900	Associate's degree	RCS
Medical & Health Services Managers	Plan, direct and coordinate medical and healthcare services and facilities. May manage large physician group practices or specialize in clinical areas or departments.	Support Services	★★★★★	★★★★★	\$69,710 / \$103,940	Bachelor's degree	ECS
Medical Assistants	Complete administrative and clinical tasks in hospitals, offices of physicians, and other healthcare facilities.	Therapeutic Services	★★★★★	★★★★★	\$26,660 / \$34,740	Postsecondary nondegree award	SCR
Medical Secretaries	Perform routine clerical and organizational tasks.	Health Informatics	★★★★★	★★★★	\$26,650 / \$35,500	High School +	CS
Nuclear Medicine Technologists	Prepare and administer radioactive drugs for imaging or treatment.	Diagnostic Services	★★	★★★★	\$53,220 / \$70,480	Associate's degree	IRS
Nurse Practitioners	Coordinate patient care and may provide primary and specialty health care. The scope of practice varies from state to state.	Therapeutic Services	★★★★	★★★★★	\$85,130 / \$106,770	Master's degree	SIR
Nursing Assistants	Provide basic care and help patients with activities of daily living. Orderlies transport patients and clean treatment areas.	Therapeutic Services	★★★★★	★★★	\$20,530 / \$27,610	Postsecondary nondegree award	SCR
Occupational Therapy Assistants	Help patients develop, recover, and improve the skills needed for daily living and working. Provide patient therapy, working under the direction of occupational therapists.	Therapeutic Services	★★★	★★★★★	\$44,500 / \$66,490	Associate's degree	SR
Phlebotomists	Draw blood for tests, transfusions, research, or blood donations.	Support Services	★★★★★	★★★★★	\$26,540 / \$34,780	Postsecondary nondegree award	CRI
Physical Therapist Assistants	Help physical therapists provide physical therapy treatments and procedures. May also assist in developing treatment plans, tracking progress, and modifying specific treatments based on patients' progress and PT's treatment plans.	Therapeutic Services	★★★★	★★★★★	\$44,660 / \$61,090	Associate's degree	SRI
Radiation Therapists	Administer doses of radiation to patients who have cancer or other serious diseases.	Therapeutic Services	★★	★★★★	\$58,210 / \$80,420	Associate's degree	SRC
Respiratory Therapists	Care for patients who have trouble breathing due to chronic respiratory diseases like COPD. Work with patients of all ages and provide emergency care to patients suffering from heart attacks, drowning, or shock.	Therapeutic Services	★★★★	★★★★★	\$44,500 / \$59,040	Associate's degree	SIR
Surgical Technologists	Assist in surgical operations.	Therapeutic Services	★★★★	★★★	\$33,960 / \$44,880	Postsecondary nondegree award	RSC
Veterinary Technologists & Technicians	Do medical tests that help diagnose animals' injuries and illnesses.	Diagnostic Services	★★★★	★★★★★	\$25,750 / \$35,470	Associate's degree	RI





# Career Stories



**Jann Sanders**

Gaston College  
Nurse



**Seham Alimusleh**

Alamance Community College  
Dental Assistant

**Q: What is the best part of your job?**

**A:** The best part of my job is that I get to bring some kindness and tenderness into the life of my patient. As much as I can, I like to love on my patients.

**Q: Why is your job important?**

**A:** Nurses, because we spend the most time with the patient and caring for them, can catch vital information that providers may not be able to. Nurses are the middlemen between the patient and the providers.

**Q: Where did you get your training / education?**

**A:** I attended Gaston College Nursing Program. I also worked as a CNA and served as a caregiver for my mother-in-law and father-in-law before their passing. There is something to be said about life experience. I gained a wealth of knowledge in all 3 places.

**Q: How did you decide to pursue your occupation?**

**A:** I have always loved going to the dentist as a kid and everyone was so nice. I have been a patient at the orthodontist for 3 years wearing braces. I have seen a lot and it was something I enjoyed.

**Q: Why is the work you do important?**

**A:** Most people have insecurities about their smile and I think helping them with these insecurities is important.

**Q: What would interest others about your career choice?**

**A:** Seeing the smile on your patients face after their appointment or after a big change they made to their smile.

**Q: What kind of training and education do you need for this job?**

**A:** Hands-on training and practice at private practices.



# Hospitality & Tourism

When you pick up takeout food, eat in a restaurant or cafeteria, and enjoy food at catered events, you're helping support the hospitality industry. If you travel and stay in a hotel, bed-and-breakfast, or RV park, the tourism industry benefits. Going to baseball games, casinos, and museums are other activities that contribute to this industry's part of the economy.

As in most clusters, technology has changed how people work and serve customers. Some restaurants provide tablets for customers to use for ordering and paying for meals and for playing games while waiting to be served. Computer systems allow managers to track inventory and to set up worker schedules.

Hospitality and tourism occupations include many entry-level positions. Although some management jobs require postsecondary education, a high school diploma is sufficient for a number of occupations. The work environment for these occupations varies according to job function. Kitchen employees work in hot, noisy surroundings while event planners may spend much of their time in an office. Tourism workers often have schedules that depend on their locations and on special events and seasons. Industries that tend to employ the highest number of hospitality and tourism workers include full-service and fast-food restaurants, hotels and motels, janitorial companies, and public schools.

## CAREER RESEARCH

- Destinations International [destinationsinternational.org](https://www.destinationsinternational.org)
- National Restaurant Association Educational Foundation [chooseresaurants.org](https://www.chooseresaurants.org)
- North Carolina Restaurant & Lodging Association [ncrla.org](https://www.ncrla.org)
- IDEA Health & Fitness Association [www.ideafit.com](https://www.ideafit.com)
- International Association of Amusement Parks and Attractions [www.iaapa.org](https://www.iaapa.org)
- Family, Career and Community Leaders of America (FCCLA) [fcclainc.org](https://www.fcclainc.org)

Find more  
Hospitality  
& Tourism  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Service Orientation
- Coordination
- Management of Material Resources
- Management of Financial Resources
- Social Perceptiveness
- Negotiation
- Persuasion
- Management of Personnel Resources
- Time Management
- Speaking





## SELECTED OCCUPATIONS

### Lodging Pathway

- **Building and Grounds Cleaning and Maintenance**  
*Building Cleaning Workers, All Other; First-Line Supervisors of Housekeeping and Janitorial Workers; Janitors and Cleaners, Except Maids and Housekeeping Cleaners; Maids and Housekeeping Cleaners.*
- **Management**  
*Lodging Managers.*
- **Office and Administrative Support**  
*Hotel, Motel, and Resort Desk Clerks.*
- **Personal Care and Service**  
*Baggage Porters and Bellhops; Concierges.*

### Recreation, Amusements & Attractions Pathway

- **Arts, Design, Entertainment, Sports, and Media**  
*Athletes and Sports Competitors; Umpires, Referees, and Other Sports Officials.*
- **Management**  
*Gaming Managers.*
- **Office and Administrative Support**  
*Gaming Cage Workers.*
- **Personal Care and Service**  
*Amusement and Recreation Attendants; Animal Trainers; Entertainment Attendants and Related Workers, All Other; Gaming and Sports Book Writers and Runners; Gaming Dealers; Gaming Service Workers, All Other; Gaming Supervisors; Motion Picture Projectionists; Recreation Workers; Ushers, Lobby Attendants, and Ticket Takers.*
- **Sales and Related**  
*Gaming Change Persons and Booth Cashiers.*

### Restaurants & Food/Beverage Services Pathway

- **Food Preparation and Serving Related**  
*Bartenders; Chefs and Head Cooks; Combined Food Preparation and Serving Workers, Including Fast Food; Cooks, All Other; Cooks, Fast Food; Cooks, Institution and Cafeteria; Cooks, Private Household; Cooks, Restaurant; Cooks, Short Order; Dining Room and Cafeteria Attendants and Bartender Helpers; Dishwashers; First-Line Supervisors of Food Preparation and Serving Workers; Food Preparation and Serving Related Workers, All Other; Food Preparation Workers; Food Servers, Nonrestaurant; Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop; Waiters and Waitresses.*
- **Management**  
*Food Service Managers.*
- **Production**  
*Bakers.*

### Travel & Tourism Pathway

- **Office and Administrative Support**  
*Reservation and Transportation Ticket Agents and Travel Clerks.*
- **Personal Care and Service**  
*Tour Guides and Escorts; Travel Guides.*
- **Sales and Related**  
*Travel Agents.*

## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/Median Wages	Minimum Education	Interest Areas
Amusement & Recreation Attendants	Perform a variety of duties at amusement or recreation facilities. They may schedule use of recreation facilities, maintain and provide equipment to participants of sporting events or recreational activities, or operate amusement concessions and rides.	Recreation, Amusements & Attractions	★★★★★	★★★★★	\$16,740 / \$19,890	No formal educational credential	ECR
Animal Trainers	Train animals for riding, harness, security, performance, or obedience, or for assisting persons with disabilities.	Recreation, Amusements & Attractions	★★★	★★★★	\$19,460 / \$27,520	High School +	R
Bartenders	Mix and serve drinks to patrons, directly or through waitstaff.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$16,680 / \$19,990	No formal educational credential	ECR
Chefs & Head Cooks	Direct and may participate in preparing, seasoning, and cooking salads, soups, fish, meats, vegetables, desserts, or other foods. May plan and price menu items, order supplies, and keep records and accounts.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$32,020 / \$51,370	High School +	ERA
Concierges	Assist individuals at hotels, apartments, or office buildings with personal services.	Lodging	★★	★★★★★	\$20,730 / \$28,870	High School +	SE
Cooks, Restaurant	Season and prepare foods, including soups, salads, entrees, and desserts.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$17,910 / \$25,700	No formal educational credential	RE
Fast Food & Counter Workers	Take and prepare orders, clear tables, and do other tasks associated with providing food and drink to customers.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$16,830 / \$19,810	No formal educational credential	RCS
First-Line Supervisors of Food Preparation & Serving Workers	Directly oversee and coordinate activities of workers engaged in preparing and serving food in a variety of settings.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$22,210 / \$33,260	High School +	ECR
Food Service Managers	Plan, direct, or coordinate activities of an organization or department that serves food and beverages.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$39,040 / \$56,190	High School +	ECR
Gaming Managers	Plan, direct, or coordinate activities of an organization or department in gambling establishments, such as casinos or racetracks.	Recreation, Amusements & Attractions	★	★★★★★	\$73,940 / \$92,130	High School +	EC
Hosts & Hostesses, Restaurant, Lounge, & Coffee Shop	Take and prepare orders, clear tables, and do other tasks associated with providing food and drink to customers.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$16,580 / \$19,080	No formal educational credential	ES
Hotel, Motel, & Resort Desk Clerks	Help customers in practical ways, such as making room reservations, supplying customers with informations, and providing a bill for their accommodations.	Lodging	★★★★★	★★★★★	\$17,310 / \$22,460	High School +	CES
Lodging Managers	Plan, direct, or coordinate activities of an organization or department that provides lodging and other accommodations.	Lodging	★★	★★★★★	\$55,830 / \$82,720	High School +	ECS
Recreation Workers	Design and lead leisure activities for groups in volunteer agencies or recreation facilities like playgrounds, parks, camps, aquatic, and senior centers. Activities may include arts and crafts, sports, adventure programs, music, and camping.	Recreation, Amusements & Attractions	★★★★★	★★★	\$17,910 / \$29,110	High School +	SEA
Reservation & Transportation Ticket Agents & Travel Clerks	Sell, make, and confirm reservations for transportation or lodging. Check in baggage and direct passengers to departure areas.	Travel & Tourism	★★★★★	★★★	\$30,590 / \$49,240	High School +	CES
Travel Agents	Plan and sell transportation and accommodations to travel agency customers.	Travel & Tourism	★★★	★★	\$22,690 / \$39,320	High School +	EC
Umpires, Referees, & Other Sports Officials	Preside over competitive athletic or sporting events to help maintain standards of play.	Recreation, Amusements & Attractions	★★	★★★★★	\$17,640 / \$30,520	High School +	REC
Ushers, Lobby Attendants, & Ticket Takers	Assist patrons at entertainment events by performing duties such as collecting admission tickets and passes from patrons, searching for lost articles, and locating facilities such as rest rooms and telephones.	Recreation, Amusements & Attractions	★★★★★	★★★★★	\$16,670 / \$19,600	No formal educational credential	SCE
Waiters & Waitresses	Take orders and serve food and beverages to patrons at tables in dining establishments.	Restaurants and Food/Beverage Services	★★★★★	★★★★★	\$16,620 / \$19,410	No formal educational credential	SEC

# Career Stories



## Tre'Von Dawkins

Alamance Community College  
*Culinary Arts*

**Q: How did you decide to pursue your occupation? What made you decide to work in your field?**

**A:** In high school, it was between culinary and technology. I just always gravitated towards the kitchen, which is why I decided to choose it.

**Q: What do you like about your field?**

**A:** My favorite thing about it is seeing the people's happy faces and enjoying the meals I created for them.

**Q: Why is the work you do or will do important?**

**A:** Food is something we all need to survive. As long as we need food, I will always be there to help.

**Q: Where did you get your training/education?**

**A:** It started at home, almost naturally I would say. But the real training started at ACC with Chef Bailey and Chef Wanless.

**Q: What kind of training and education do you need to get this job?**

**A:** Besides the obvious degrees and certifications. You need to have the will to not give up and to keep trying even when the meals you cook don't go to plan.

**Q: Where do you see yourself in five years?**

**A:** In five years I hope to be an executive chef, working in my own restaurant.

**Q: What advice do you have for people considering your career path?**

**A:** My advice to others is you never know if you like it until you try it.



# Human Services

From mental health counselors to hairdressers, human services workers provide a wide range of assistance to individuals and families. People who choose to work in this cluster usually have a deep desire to enrich and make life easier for others.

What kinds of services do human services customers need? They may benefit from rehabilitation therapy; psychological assistance; help with daily activities such as meal preparation or housekeeping; spiritual guidance; or health education. Their needs have an impact on where workers provide services. Psychologists and social and community service managers are likely to work in office settings. Others like clergy and social workers may work part of the time in an office and may also visit people at home.

Since the services provided in this industry vary greatly, workers in this cluster have educational backgrounds that range from high school diplomas to doctorates. They may also need credentials such as certifications and licenses. Social assistance organizations and local and state government tend to offer more human services jobs than do other work settings.

## CAREER RESEARCH

- National Association of Social Workers  
[socialworkers.org](https://www.socialworkers.org)
- National Association for Family Child Care  
[nafcc.org](https://www.nafcc.org)
- Association for Early Learning Leaders  
[earlylearningleaders.org](https://www.earlylearningleaders.org)
- Associated Bodywork & Massage Professionals  
[abmp.com](https://www.abmp.com)
- US Department of Health and Human Services  
[hhs.gov/about/careers/index.html](https://www.hhs.gov/about/careers/index.html)

Find more  
Human  
Services  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Service Orientation
- Social Perceptiveness
- Persuasion
- Negotiation
- Speaking
- Learning Strategies
- Active Listening
- Coordination
- Management of Personnel Resources
- Time Management





## SELECTED OCCUPATIONS

### Consumer Services Pathway

- **Business and Financial Operations**  
*Credit Counselors; Loan Officers.*

### Counseling & Mental Health Services Pathway

- **Community and Social Service**  
*Counselors, All Other; Marriage and Family Therapists; Mental Health and Substance Abuse Social Workers; Mental Health Counselors; Rehabilitation Counselors; Substance Abuse and Behavioral Disorder Counselors.*
- **Life, Physical, and Social Science**  
*Clinical, Counseling, and School Psychologists; Industrial-Organizational Psychologists; Psychologists, All Other.*

### Early Childhood Development & Services Pathway

- **Personal Care and Service**  
*Childcare Workers.*

### Family & Community Services Pathway

- **Community and Social Service**  
*Child, Family, and School Social Workers; Clergy; Community and Social Service Specialists, All Other; Community Health Workers; Directors, Religious Activities and Education; Health Educators; Healthcare Social Workers; Religious Workers, All Other; Social and Human Service Assistants; Social Workers, All Other.*
- **Management**  
*Social and Community Service Managers.*

### Personal Care Services Pathway

- **Healthcare Support**  
*Massage Therapists.*
- **Management**  
*Funeral Service Managers; Managers, All Other.*
- **Personal Care and Service**  
*Barbers; Embalmers; First-Line Supervisors of Personal Service Workers; Fitness Trainers and Aerobics Instructors; Funeral Attendants; Hairdressers, Hairstylists, and Cosmetologists; Locker Room, Coatroom, and Dressing Room Attendants; Manicurists and Pedicurists; Morticians, Undertakers, and Funeral Directors; Personal Care Aides; Personal Care and Service Workers, All Other; Residential Advisors; Shampooers; Skincare Specialists.*
- **Production**  
*Laundry and Dry-Cleaning Workers; Pressers, Textile, Garment, and Related Materials; Tailors, Dressmakers, and Custom Sewers*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Child, Family, & School Social Workers	Provide social services and assistance to improve the social and psychological functioning of children and their families. Work to maximize family well-being and to help children do well in school.	Family & Community Services	★★★★★	★★★★	\$33,760 / \$47,470	Bachelor's degree	SE
Clinical, Counseling, & School Psychologists	Diagnose and treat psychological disorders; learning disabilities; and cognitive, behavioral, and emotional problems using individual, child, family, and group therapies. Clients served depend upon psychologist's training and work setting.	Counseling & Mental Health Services	★★★	★★★	\$43,640 / \$68,360	Doctoral or professional degree	IS
Community Health Workers	Help individuals and communities adopt healthy behaviors. Conduct outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health.	Family & Community Services	★★★	★★★★★	\$22,220 / \$39,360	High School +	SIE
First-Line Supervisors of Personal Service Workers	Directly supervise and coordinate activities of personal service workers such as flight attendants, hairdressers, or caddies.	Personal Care Services	★★★★★	★★★★★	\$26,190 / \$40,480	High School +	ECS
Fitness Trainers & Aerobics Instructors	Instruct or coach groups or individuals in exercise activities. They demonstrate techniques and form, observe participants, and explain corrective measures for improving their skills.	Personal Care Services	★★★★★	★★★★★	\$19,590 / \$35,440	High School +	SRE
Funeral Home Managers	Organize and manage the details of a ceremony honoring a deceased person.	Personal Care Services	★	★★	\$49,370 / \$77,310	Associate's degree	ECS
Health Educators	Provide and manage health education programs that help individuals, families, and communities maximize and maintain healthy lifestyles. May collect and analyze data to identify community needs before planning, implementing, monitoring, and evaluating programs.	Family & Community Services	★★★	★★★	\$36,370 / \$55,050	Bachelor's degree	SE
Healthcare Social Workers	Help people solve and cope with problems related to health challenges.	Family & Community Services	★★★★★	★★★★★	\$41,200 / \$56,800	Master's degree	SI
Manicurists & Pedicurists	Clean, shape, and beautify fingernails and toenails.	Personal Care Services	★★★	★★★★★	\$17,640 / \$25,430	Postsecondary nondegree award	RES
Marriage & Family Therapists	Help people manage and overcome problems with family and other relationships.	Counseling & Mental Health Services	★★	★★★★★	\$33,640 / \$43,030	Master's degree	SAI
Massage Therapists	Treat clients by using touch to manipulate the soft-tissues of the body. Relieve pain, help rehabilitate injuries, improve circulation, relieve stress, increase relaxation, and aid in the general wellness of clients.	Personal Care Services	★★★★★	★★★★★	\$19,150 / \$41,220	Postsecondary nondegree award	SR
Mental Health & Substance Abuse Social Workers	Assess and treat people who have mental, emotional, or substance abuse problems, including abuse of alcohol, tobacco, and/or other drugs.	Counseling & Mental Health Services	★★★★★	★★★★★	\$39,250 / \$54,220	Master's degree	SIA
Morticians, Undertakers, & Funeral Directors	Perform various tasks to arrange and direct funeral services, such as coordinating transportation of the body to the mortuary, interviewing family or other authorized persons to arrange details, and selecting pallbearers.	Personal Care Services	★★★	★★	\$27,760 / \$53,130	Associate's degree	ESC
Rehabilitation Counselors	Help people who have emotional and physical disabilities live and work independently.	Counseling & Mental Health Services	★★★★★	★★★	\$22,920 / \$41,860	Master's degree	SI
Residential Advisors	Coordinate activities in residential facilities in secondary and college dormitories, group homes, or similar establishments. They order and report needs for maintenance, repairs, and furnishings.	Personal Care Services	★★★★★	★★★★★	\$19,400 / \$30,050	High School +	SEC
Skincare Specialists	Provide skincare treatments to face and body to enhance an individual's appearance.	Personal Care Services	★★★	★★★★★	\$22,210 / \$40,890	Postsecondary nondegree award	ESR
Social & Community Service Managers	Coordinate and supervise social service programs and community organizations. Direct and lead staff who provide social services to the public.	Family & Community Services	★★★★★	★★★★★	\$41,470 / \$65,440	Bachelor's degree	ES
Social & Human Service Assistants	Help people get through difficult times or obtain additional support. Assist other workers, such as social workers, and help clients find benefits or community services.	Family & Community Services	★★★★★	★★★★★	\$22,760 / \$34,090	High School +	CSE
Substance Abuse, Behavioral Disorder, & Mental Health Counselors	Counsel and advise individuals, families, or groups to prevent or treat substance abuse, behavioral problems, or other mental health issues to promote good mental and emotional health.	Counseling & Mental Health Services	★★★★★	★★★★★	\$32,290 / \$47,650	Bachelor's degree	SAI



# Career Stories



## Renée U. Hines

Davidson-Davie Community College  
*Associates in Applied Science*

**Q: What made you interested in this career path?**

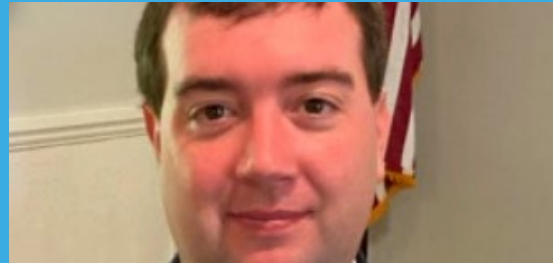
**A:** My life's journey and experiences helped me to decide what I wanted to do as a career. I have been through some very challenging circumstances including mental health struggles, addiction and homelessness. From the pain I experienced in those situations, I developed a passion to help others. I want to be someone that can help others be seen and heard, to let them know they're not alone and that there's hope of a brighter tomorrow.

**Q: What's the best part of your job?**

**A:** Connecting with patients in a meaningful way. Helping them to see their worth when they're at their lowest. Especially when that results in them finding their way out of addiction and into recovery and a new start! People are dying daily from addiction. This job impacts lives. It has the potential to save lives.

**Q: What does a typical day at work look like for you?**

**A:** I come in and screen the patients that are currently in our trauma center. I created a list of patients I will see that day. Throughout the day I will return emails, attend meetings, coordinate with the counselors on our team, etc. Depending on if it's a first encounter with a patient or if it's ongoing, I will sit with a patient anywhere from 10 minutes to an hour.



## Walton Kenneth "Trey" Herring III

Fayetteville Technical Community College  
*Funeral Service Professional*

**Q: What made you interested in this career path?**

**A:** My father has been a funeral service professional for over 42 years. Growing up around the funeral service profession gave me the opportunity to see the positive impact it can have on the lives of others. Funeral service professionals help families during the most difficult times in their lives and to me there is no higher calling.

**Q: Where did you start your career?**

**A:** I began my career as an apprentice at Boles Funeral Home in Southern Pines, NC. After completing my apprenticeship and becoming a funeral service licensee, I became the general manager of Miller-Boles Funeral Home in Sanford, NC.

**Q: What advice do you have for people considering your career path?**

**A:** Thoroughly research the responsibilities of this career. Funeral service can be demanding at times but is also a very rewarding career path. This job is about serving others in their time of need and can require tasks to be completed during holidays and outside of normal working hours.



# Information Technology

Maybe you used to shop more at the mall but now order things online. Smart electronics can give travel directions and even turn on your oven while you're out. You can push a button to start your car and immediately stop to move the bicycle that showed up in your backup camera. Who's responsible for these tools?

Workers in the information technology (IT) industry develop the software and hardware that make our lives easier, and they fix and help us use these tools. As organizations and individuals face the threats and consequences of data theft, they need information security analysts to maintain online safety and privacy. In North Carolina, this occupation has the third highest expected percentage of new job growth in the IT career cluster. Because they occur in almost any industry, the three IT occupations that are likely to have the largest total job openings in North Carolina include applications software developers, computer user support specialists, and computer systems analysts.

All IT jobs are professional, and most new jobs will require postsecondary education. IT careers can be found in many work settings. The kinds of organizations most likely to employ IT workers include: custom computer programming companies; computer systems design companies; corporate and regional managing offices; software publishers; and data processing and hosting businesses.

IT has changed the technical skills required in many occupations. While reducing the availability of some jobs, it has also produced totally new career options. As IT continues to evolve, we will need to keep pace with its changes in our workplaces.

## CAREER RESEARCH

- Center of Excellence for Information and Computing Technology  
[coeforict.org](http://coeforict.org)
- National Center for Women and Information Technology  
[ncwit.org](http://ncwit.org)
- Institute of Electrical and Electronics Engineers Computer Society  
[www.computer.org](http://www.computer.org)
- Technology Services Industry Association  
[tsia.com](http://tsia.com)
- National Center for Systems Security and Information Assurance  
[www.cssia.org](http://www.cssia.org)

Find more  
Information  
Technology  
Occupations:







## CAREER PATHWAYS



## CORE SKILLS

- Programming
- Technology Design
- Operations Analysis
- Systems Analysis
- Systems Evaluation
- Installation
- Complex Problem Solving
- Troubleshooting
- Quality Control Analysis
- Mathematics





## SELECTED OCCUPATIONS

### Information Support & Services Pathway

- **Business and Financial Operations**  
*Market Research Analysts and Marketing Specialists.*
- **Computer and Mathematical**  
*Computer Occupations, All Other; Computer User Support Specialists; Database Administrators; Mathematical Science Occupations, All Other; Software Developers, Applications; Web Developers.*
- **Management**  
*Managers, All Other.*

### Network Systems Pathway

- **Computer and Mathematical**  
*Computer Network Architects; Computer Network Support Specialists; Database Administrators; Information Security Analysts; Network and Computer Systems Administrators.*

### Programming & Software Development Pathway

- **Computer and Mathematical**  
*Computer Programmers; Computer Systems Analysts; Software Developers, Applications.*

### Web & Digital Communications Pathway

- **Computer and Mathematical**  
*Web Developers.*

## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Computer Network Architects	Based on an organization's goals, design and build data communication networks ranging from simple connections between two offices to complex multinational communication systems.	Network Systems	★★★★	★★	\$62,700 / \$109,210	Bachelor's degree	ICE
Computer Network Support Specialists	Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system.	Network Systems	★★★★	★★★★	\$40,490 / \$66,100	Associate's degree	REC
Computer Programmers	Create, modify, and test the code, forms, and script that allow computer applications to run. Work from specifications drawn up by software developers or other individuals.	Programming and Software Development	★★★	★	\$55,540 / \$92,440	Bachelor's degree	IC
Computer Systems Analysts	Study an organization's computer systems and procedures. Design information system solutions to help the organization operate more efficiently and effectively by understanding both business and information technology (IT).	Programming and Software Development	★★★★★	★★★★	\$56,700 / \$92,850	Bachelor's degree	ICR
Computer User Support Specialists	Help people who have computer problems through phone, email, or in-person visits. Often work under network and computer systems administrators, who handle more complex tasks.	Information Support and Services	★★★★★	★★★★	\$31,820 / \$50,660	Some college, no degree	RIC
Database Administrators	Use specialized software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.	Network Systems	★★★★	★★★	\$53,830 / \$99,040	Bachelor's degree	CI
Database Architects	Design strategies for enterprise databases, data warehouse systems, and multidimensional networks. Set standards for database operations, programming, query processes, and security. Model, design, and construct large relational databases or data warehouses. Create and optimize data models for warehouse infrastructure and workflow. Integrate new systems with existing warehouse structure and refine system performance and functionality.	Network Systems	★★★★	★★★	\$62,200 / \$104,520	Bachelor's degree	CI
Information Security Analysts	Plan and carry out security measures to protect an organization's computer networks and systems. Responsibilities are continually expanding as the number of cyberattacks increase.	Network Systems	★★★★★	★★★★★	\$65,470 / \$100,780	Bachelor's degree	CIR
Network & Computer Systems Administrators	Responsible for the day-to-day operation of the computer networks that are critical parts of almost every organization.	Network Systems	★★★★★	★★★	\$46,220 / \$82,220	Bachelor's degree	IRC
Software Developers	The creative minds behind computer programs. They develop applications that allow people to do specific tasks when using technology tools.	Programming and Software Development	★★★★★	★★★★★	\$72,130 / \$119,090	Bachelor's degree	ICR
Software Quality Assurance Analysts & Testers	Develop and execute software tests to identify software problems and their causes. Test system modifications to prepare for implementation. Document software and application defects using a bug tracking system and report defects to software or web developers. Create and maintain databases of known defects. May participate in software design reviews to provide input on functional requirements, operational characteristics, product designs, and schedules.	Programming and Software Development	★★★★★	★★★★★	\$59,620 / \$99,340	Bachelor's degree	ICR
Web and Digital Interface Designers	Design digital user interfaces or websites by creating and testing layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices.	Web and Digital Communications	★★★	★★★	\$38,420 / \$61,380	Bachelor's degree	CIR
Web Developers	Develop and implement websites, web applications, application databases, and interactive web interfaces. Evaluate code to ensure that it is properly structured, meets industry standards, and is compatible with browsers and devices.	Web and Digital Communications	★★★	★★★	\$47,090 / \$78,740	Associate's degree	CIR

# Career Stories



**Erin Rice**

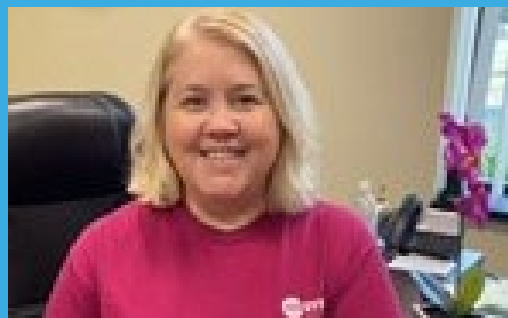
Asheville-Buncombe Technical Community College  
*User Experience Architect*

**Q: How did you decide to pursue your occupation? /  
What made you decide to work in your field?**

**A:** I have always had an interest in art / visual design. I took a graphic design course in high school and loved it! Several years later, when thinking about my career path, I heard about the Digital Media program at AB Tech and decided to give it a try. From there, I was able to get hired as a website developer (which also required some design work). Over several years I honed my design skills related to digital interfaces on the job. Since my previous career focus was in guest service, my designs were always focused with the user interest in mind. I became a user-centered design advocate in my role as Website Manager, and then realized that my passion for design and the user was a perfect fit for a User Experience design role. I have now been focused entirely on User Experience Design for 6 years, and the combination of visual design, empathy for the user, and creative problem solving tasks make this role the perfect marriage of my interests and passions.

**Q: Where did you get your training/education?**

**A:** I received an AAS from A-B Tech's Digital Media program. This program provided me with various skills that I still use today! Later, I received a Bachelor of Science in Communication / Advertising from Appalachian State. Specific to UX design, I have done my own research and self-training to evolve my skills and understanding over time.



**Susan Duncan**

Surry Community College  
*Systems Administrator*

**Q: How did you decide to pursue your occupation?**

**A:** I always loved computers and my father was a programmer. I have always enjoyed figuring out the problem.

**Q: What's the best part of your job?**

**A:** The what if and helping people. I want to help people work smarter not harder. My work keeps internal communication and processes going as well as substation communication going to keep the power on for membership.

**Q: What would interest others about your job?**

**A:** You never know what you will do each day. Each day I do check processes first thing in the morning, but after that, it is whatever needs to be taken care of, whatever people throw at me.

**Q: What project are you working on now?**

**A:** Implementing the new system inventory in our mapping and staking software.

**Q: What kind of training/education do you need to get this job and where did you get yours?**

**A:** 4-year degree and experience working with computers and systems. I started at Surry Community and then High Point University.

**Q: What advice do you have for people considering your career path?**

**A:** Learn to adapt to change, change is good. It helps us grow.



# Law, Public Safety, Corrections & Security

When there's something strange in your neighborhood, who are you going to call? Typically, someone from this career cluster will respond to your request for help. These workers protect us from crime and other sources of harm like natural disasters. They help us receive fair treatment and seek justice when we've been wronged. Some workers also set up and implement security plans.

If you pay attention to the evening news or watch television dramas, you're aware of the most obvious occupations in this industry: police officers, firefighters, and lawyers. Less obvious jobs in this cluster include lifeguards and ski patrol workers and animal control workers. Occupations with large projected 10-year increases in openings include lawyers and emergency medical technicians.

Work environments and educational backgrounds differ in these occupations. Although some workers stay in offices most of the day, others work outdoors. For certain jobs, workers must pass medical exams and demonstrate strength and agility. Some careers may be dangerous and require shift work, sometimes with long hours. Many of these jobs can be found at all levels of government, in law offices, and security businesses.

## CAREER RESEARCH

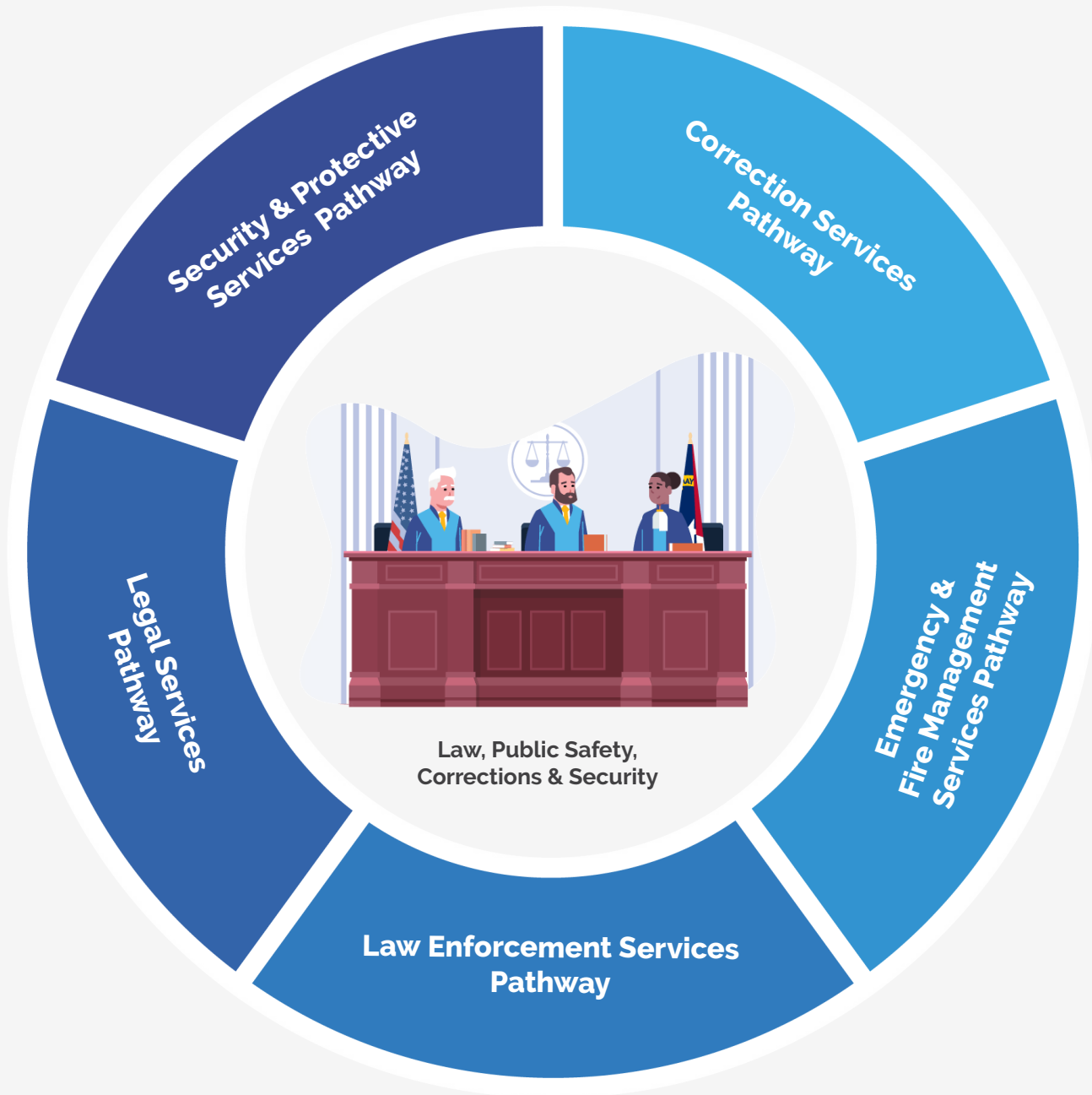
- American Bar Association  
[americanbar.org/aba.html](http://americanbar.org/aba.html)
- U.S. Department of Homeland Security  
[dhs.gov](http://dhs.gov)
- National Institute of Corrections  
[nicic.gov](http://nicic.gov)
- Fraternal Order of Police  
[fop.net/Index.aspx](http://fop.net/Index.aspx)
- Federal Law Enforcement Jobs  
[federaljobs.net/law.htm](http://federaljobs.net/law.htm)

Find more  
Law, Public  
Safety,  
Corrections  
& Security  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Negotiation
- Persuasion
- Active Listening
- Social Perceptiveness
- Speaking
- Critical Thinking
- Writing
- Reading Comprehension
- Monitoring
- Service Orientation





## SELECTED OCCUPATIONS

### Correction Services Pathway

- **Community and Social Service**  
*Probation Officers and Correctional Treatment Specialists.*
- **Protective Service**  
*Correctional Officers and Jailers; First-Line Supervisors of Correctional Officers.*

### Emergency & Fire Management Services Pathway

- **Healthcare Practitioners and Technical**  
*Emergency Medical Technicians and Paramedics.*
- **Office and Administrative Support**  
*Police, Fire, and Ambulance Dispatchers.*
- **Protective Service**  
*Fire Inspectors and Investigators; Firefighters; First-Line Supervisors of Fire Fighting and Prevention Workers; Forest Fire Inspectors and Prevention Specialists.*

### Law Enforcement Services Pathway

- **Life, Physical, and Social Science**  
*Forensic Science Technicians.*
- **Protective Service**  
*Animal Control Workers; Detectives and Criminal Investigators; First-Line Supervisors of Police and Detectives; Fish and Game Wardens; Parking Enforcement Workers; Police and Sheriff's Patrol Officers; Private Detectives and Investigators; Transit and Railroad Police.*

### Legal Services Pathway

- **Legal**  
*Administrative Law Judges, Adjudicators, and Hearing Officers; Arbitrators, Mediators, and Conciliators; Court Reporters; Judges, Magistrate Judges, and Magistrates; Judicial Law Clerks; Lawyers; Legal Support Workers, All Other; Paralegals and Legal Assistants; Title Examiners, Abstractors, and Searchers.*
- **Office and Administrative Support**  
*Legal Secretaries.*

### Security & Protective Services Pathway

- **Protective Service**  
*Bailiffs; Crossing Guards; First-Line Supervisors of Protective Service Workers, All Other; Gaming Surveillance Officers and Gaming Investigators; Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers; Protective Service Workers, All Other; Security Guards*

## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Administrative Law Judges, Adjudicators, & Hearing Officers	Apply the law by overseeing the legal process in courts.	Legal Services	★	★	\$56,050 / \$111,880	Doctoral or professional degree	EIS
Detectives & Criminal Investigators	Gather facts and collect evidence of possible crimes.	Law Enforcement Services	★★★	★★	\$41,450 / \$53,590	High School +	EI
Emergency Medical Technicians	Care for the sick or injured in emergencies. potentially saving people's lives. Often work with police and firefighters at the emergency scene.	Emergency and Fire Management Services	★★★★★	★★★★	\$23,200 / \$35,920	Postsecondary nondegree award	SIR
Fire Inspectors & Investigators	Examine buildings to detect fire hazards and ensure that federal, state, and local fire codes are met (fire inspectors). Determine the origin and cause of fires and explosions (fire investigators).	Emergency and Fire Management Services	★★	★★★★	\$39,090 / \$53,340	Postsecondary nondegree award	RCI
Firefighters	Control fires and respond to other emergencies, including medical emergencies.	Emergency and Fire Management Services	★★★★★	★★★★	\$21,980 / \$31,750	Postsecondary nondegree award	RSE
First-Line Supervisors of Fire Fighting & Prevention Workers	Supervise firefighters who control and put out municipal fires, protect life and property, and conduct rescue efforts or oversee firefighters who control and suppress fires in forests or vacant public land.	Emergency and Fire Management Services	★★★	★★★★	\$34,470 / \$58,680	Postsecondary nondegree award	ERS
First-Line Supervisors of Police & Detectives	Directly supervise and coordinate activities of members of a police force.	Law Enforcement Services	★★★★	★★★	\$46,820 / \$67,230	High School +	ESC
Forensic Science Technicians	Collect, identify, classify, and analyze physical evidence related to criminal investigations. Perform tests on weapons or substances to determine their significance to an investigation.	Law Enforcement Services	★★	★★★★★	\$34,690 / \$45,820	Bachelor's degree	IRC
Gaming Surveillance Officers & Gaming Investigators	Patrol and protect property from illegal activity.	Security & Protective Services	★★	★★★★	\$28,660 / \$43,680	High School +	RCE
Paralegals & Legal Assistants	Perform a variety of tasks to support lawyers, including maintaining and organizing files, conducting legal research, and drafting documents.	Legal Services	★★★★★	★★★★	\$29,870 / \$46,920	Associate's degree	CIE
Paramedics	Care for the sick or injured in emergencies. potentially saving people's lives. Often work with police and firefighters at the emergency scene.	Emergency and Fire Management Services	★★★★★	★★★	\$36,450 / \$38,830	Postsecondary nondegree award	SIR
Parking Enforcement Workers	Patrol assigned area, such as public parking lots or city streets to issue tickets to overtime parking violators and illegally parked vehicles.	Law Enforcement Services	★	★	\$24,240 / \$31,690	High School +	RC
Police & Sheriff's Patrol Officers	Protect lives and property.	Law Enforcement Services	★★★★★	★★★	\$33,960 / \$46,580	High School +	ER
Police, Fire, & Ambulance Dispatchers	Answer emergency and nonemergency calls and provide resources to assist those in need.	Emergency and Fire Management Services	★★★★	★★★	\$27,640 / \$36,470	High School +	CRE
Private Detectives & Investigators	Gather, analyze, compile and report information about individuals or organizations to clients, or detect occurrences of unlawful acts or infractions of rules in a private establishment.	Law Enforcement Services	★★	★★★	\$33,990 / \$55,530	High School +	EC
Probation Officers & Correctional Treatment Specialists	Provide social services to help rehabilitate law offenders in custody or on probation or parole. Make recommendations for actions involving establishing the rehabilitation plan and treatment of offender, including conditional release and education.	Correction Services	★★★★	★★	\$38,510 / \$45,130	Bachelor's degree	SEC
Security Guards	Protect, patrol, and check property to prevent theft, vandalism, violence, and illegal activity. May operate x-ray and metal detector equipment.	Security & Protective Services	★★★★★	★★★★	\$21,230 / \$29,730	High School +	RCE
Title Examiners, Abstractors, & Searchers	Search real estate records, examine titles, or summarize necessary legal or insurance documents or details for a variety of purposes.	Legal Services	★★	★★★	\$22,270 / \$47,800	High School +	CER



# Career Stories



## Vidal Sipe

Catawba Valley Community College  
*Chief of Police*

### Q: What do you like about your chosen career path?

**A:** This profession has many benefits, and it is hard to pick just one or two things. My career is ever-changing; as many officers would agree, each day brings something different. One aspect that I appreciate most is that, on a daily basis, I have an opportunity to help someone's day become better than it was before.

### Q: What does a typical day look like for you?

**A:** With my position as the Chief of Police, my workdays look much different than they did as a patrol officer. Currently, my days consist of several hours at my desk, meetings, and stacks of paperwork. Through collaborating with the rest of my command staff, we seek new ways to help our officers work efficiently. We want to provide them with the latest and best equipment which helps them do their job.

### Q: What would interest others about your career path?

**A:** Policing is a calling that many have discovered is not for them. Once you receive the calling, you are part of a career that accomplishes everything from helping citizens to being part of one of the most noble professions of today. Put simply, this career never has a dull moment.

### Q: What advice do you have for people considering your career path?

**A:** You will need to further your education. To stand out among the competition, you might consider attending college or earning a four-year degree.



## Donald Morton

Richmond Community College  
*Narcotics Investigator*

### Q: What made you interested in this career path?

**A:** My teenage years were very troubling. I was disobedient and unruly. My senior year changed my perspective on everything. I found a mentor named John Searcy who was a member of the Richmond County Sheriff's Office who also helped with night school at Richmond Senior High School. John would push me to make a change and helped open my eyes to a lot of things. John displayed compassion and understanding towards my situation which I had never seen from a law enforcement officer. I attended Basic Law Enforcement Training in 2006 and graduated. I began my career in Pinebluff, NC as a police officer for the Town of Pinebluff. Since then, I have worked at Rockingham Police Department, Hamlet Police Department, Wadesboro Police Department, and now work at Scotland County Sheriff's Office. I even had the opportunity to work with John in Richmond County while he served as a Magistrate. I remember him telling me how proud he was of me and having in-depth conversations about how my life could of went. I have worked as a patrol officer, corporal, sergeant, lieutenant, and investigator at most of the agencies I worked for. I now work as a Detective Sergeant of Narcotics. No matter the rank or role I served, I would always display compassion, care, and understanding towards everyone. I display this towards everyone, because one person took his time to display it to me.



# Manufacturing

Although manufacturing often brings to mind huge, wide-open factory floors, it also includes small businesses. Manufacturing businesses can range from in-home bakeries to large corporations like Siemens. One thing most manufacturing businesses have in common: increasing use of technology. From roastmasters who use programmable coffee roasting machines to industrial engineering technicians who operate 3-D printers that make metal parts, manufacturing is quite different than it was even a decade ago.

Manufacturing workers change materials, substances, or components into new products. Manufactured goods include or are made from chemicals, computers and electronics, fabricated metal products, food, machinery, plastics and rubber products, or transportation equipment. While businesses still hire workers for traditional mass production of simple products, manufacturing jobs increasingly use technologies that enable workers to customize, shorten production time, and create lighter weight, more durable products.

Manufacturing includes occupations with a variety of education and experience backgrounds, but job numbers have been decreasing in occupations that require the least amount of education. North Carolina's growth careers in manufacturing often involve installing, maintaining, and repairing increasingly technical equipment. Industries most likely to hire this cluster's workers include temporary service agencies, poultry processing plants, and furniture and drug manufacturers.

## CAREER RESEARCH

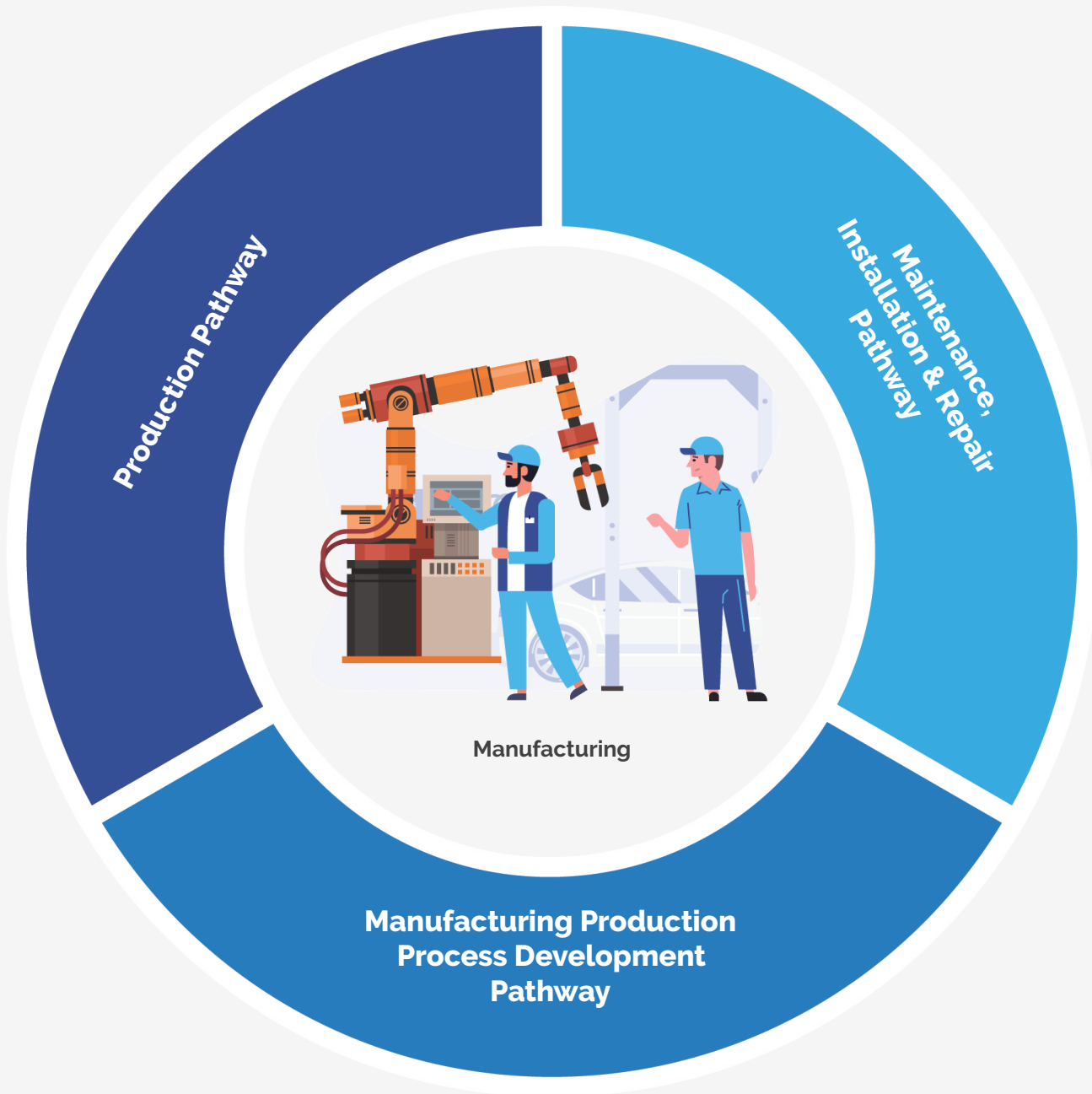
- Association for Manufacturing Technology  
[www.amtonline.org/home](http://www.amtonline.org/home)
- National Nanomanufacturing Network  
[internano.org](http://internano.org)
- Manufacturing Day  
[mfgday.com](http://mfgday.com)
- Biomanufacturing Training and Education Center  
[btec.ncsu.edu](http://btec.ncsu.edu)
- National Association of Manufacturers  
[nam.org](http://nam.org)
- SkillsUSA  
[skillsusa.org](http://skillsusa.org)

Find more  
Manufacturing  
Occupations:





# CAREER PATHWAYS



## CORE SKILLS

- Repairing
- Equipment Maintenance
- Equipment Selection
- Operation and Control
- Troubleshooting
- Installation
- Operations Monitoring
- Quality Control Analysis
- Technology Design
- Programming





## SELECTED OCCUPATIONS

### Maintenance, Installation & Repair Pathway

- **Installation, Maintenance, and Repair**

Camera and Photographic Equipment Repairers; Coin, Vending, and Amusement Machine Servicers and Repairers; Computer, Automated Teller, and Office Machine Repairers; Electric Motor, Power Tool, and Related Repairers; Electrical and Electronics Repairers, Commercial and Industrial Equipment; Electrical and Electronics Repairers, Powerhouse, Substation, and Relay; Electronic Home Entertainment Equipment Installers and Repairers; Fabric Menders, Except Garment; First-Line Supervisors of Mechanics, Installers, and Repairers; Home Appliance Repairers; Industrial Machinery Mechanics; Locksmiths and Safe Repairers; Maintenance and Repair Workers, General; Maintenance Workers, Machinery; Medical Equipment Repairers; Musical Instrument Repairers and Tuners; Outdoor Power Equipment and Other Small Engine Mechanics; Precision Instrument and Equipment Repairers, All Other; Radio, Cellular, and Tower Equipment Installers and Repairers; Security and Fire Alarm Systems Installers; Watch Repairers; Wind Turbine Service Technicians.

- **Production**

Medical Appliance Technicians.

### Manufacturing Production Process Development Pathway

- **Architecture and Engineering**

Aerospace Engineering and Operations Technicians; Drafters, All Other; Electrical and Electronics Drafters; Electrical and Electronics Engineering Technicians; Electro-Mechanical Technicians; Engineering Technicians, Except Drafters, All Other; Industrial Engineering Technicians; Mechanical Drafters; Mechanical Engineering Technicians.

- **Business and Financial Operations**

Purchasing Agents, Except Wholesale, Retail, and Farm Products.

- **Life, Physical, and Social Science**

Chemical Technicians; Nuclear Technicians.

### Production Pathway

- **Production**

Adhesive Bonding Machine Operators and Tenders; Aircraft Structure, Surfaces, Rigging, and Systems Assemblers; Assemblers and Fabricators, All Other; Butchers and Meat Cutters; Cabinetmakers and Bench Carpenters; Chemical Equipment Operators and Tenders; Chemical Plant and System Operators; Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders; Coating, Painting, and Spraying Machine Setters, Operators, and Tenders; Coil Winders, Tapers, and Finishers; Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic; Computer-Controlled Machine Tool Operators, Metal and Plastic; Cooling and Freezing Equipment Operators and Tenders; Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders; Cutters and Trimmers, Hand; Cutting and Slicing Machine Setters,

Operators, and Tenders; Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic; Dental Laboratory Technicians; Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic; Electrical and Electronic Equipment Assemblers; Electromechanical Equipment Assemblers; Engine and Other Machine Assemblers; Etchers and Engravers; Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic; Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers; Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders; Fabric and Apparel Patternmakers; Fiberglass Laminators and Fabricators; First-Line Supervisors of Production and Operating Workers; Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders; Food Batchmakers; Food Cooking Machine Operators and Tenders; Food Processing Workers, All Other; Forging Machine Setters, Operators, and Tenders, Metal and Plastic; Foundry Mold and Coremakers; Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders; Furniture Finishers; Gas Plant Operators; Grinding and Polishing Workers, Hand; Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic; Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic; Helpers--Production Workers; Jewelers and Precious Stone and Metal Workers; Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic; Layout Workers, Metal and Plastic; Machinists; Meat, Poultry, and Fish Cutters and Trimmers; Metal Workers and Plastic Workers, All Other; Metal-Refining Furnace Operators and Tenders; Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic; Mixing and Blending Machine Setters, Operators, and Tenders; Model Makers, Metal and Plastic; Model Makers, Wood; Molders, Shapers, and Casters, Except Metal and Plastic; Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic; Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic; Nuclear Power Reactor Operators; Ophthalmic Laboratory Technicians; Packaging and Filling Machine Operators and Tenders; Painting, Coating, and Decorating Workers; Paper Goods Machine Setters, Operators, and Tenders; Patternmakers, Metal and Plastic; Patternmakers, Wood; Petroleum Pump System Operators, Refinery Operators, and Gaugers; Photographic Process Workers and Processing Machine Operators; Plant and System Operators, All Other; Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic; Pourers and Casters, Metal; Power Distributors and Dispatchers; Power Plant Operators; Production Workers, All Other; Rolling Machine Setters, Operators, and Tenders, Metal and Plastic; Sawing Machine Setters, Operators, and Tenders, Wood; Semiconductor Processors; Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders; Sewers, Hand; Sewing Machine Operators; Shoe and Leather Workers and Repairers; Shoe Machine Operators and Tenders; Slaughterers and Meat Packers; Team Assemblers; Textile Bleaching and Dyeing Machine Operators and Tenders; Textile Cutting Machine Setters, Operators, and Tenders.

## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/Median Wages	Minimum Education	Interest Areas
Chemical Technicians	Conduct laboratory tests to help scientists analyze the properties of materials.	Manufacturing Production Process Development	★★★	★★★	\$32,460 / \$47,240	Associate's degree	IRC
Computer Numerically Controlled Tool Programmers	Set up and operate machines that cut, shape, and form metal and plastic materials or pieces.	Production	★★	★★★★★	\$35,660 / \$53,680	Postsecondary nondegree award	CIR
Electrical & Electronics Drafters	Develop specifications and instructions for installing electrical equipment that conducts electrical energy from transmission lines to consumers. Draw wiring diagrams, circuit board assembly diagrams, schematics, and layout drawings used for the manufacture, installation, and repair of electronic equipment.	Manufacturing Production Process Development	★★★	★★★★★	\$29,700 / \$47,800	Associate's degree	RCI
Electrical & Electronics Engineering Technicians	Help engineers design and develop computers, communications equipment, medical monitoring devices, navigational equipment, and other electrical and electronic equipment. Ooften work in product evaluation and testing, using measuring and diagnostic devices to adjust, test, and repair equipment.	Manufacturing Production Process Development	★★★	★★	\$38,520 / \$63,730	Associate's degree	RIC
Electrical & Electronics Repairers, Commercial & Industrial Equipment	Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.	Maintenance, Installation & Repair	★★★	★★★	\$33,800 / \$58,810	Postsecondary nondegree award	RIC
First-Line Supervisors of Mechanics, Installers, & Repairers	Directly supervise and coordinate the work of mechanics, installers, and repairers.	Maintenance, Installation & Repair	★★★★★	★★★	\$44,450 / \$66,810	High School +	ECR
Industrial Engineering Technicians	Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff.	Manufacturing Production Process Development	★★★★★	★★★	\$35,860 / \$50,860	Associate's degree	IRC
Industrial Machinery Mechanics	Maintain and repair factory equipment and other industrial machinery like conveying systems, production machinery, and packaging equipment.	Maintenance, Installation & Repair	★★★★★	★★★★★	\$33,720 / \$51,470	High School +	RIC
Machinists	Set up and operate a variety of machine tools to produce precision parts and instruments. May also fabricate and modify parts to make or repair machine tools or to maintain industrial machines.	Production	★★★★★	★★★★	\$28,750 / \$43,950	High School +	RCI
Maintenance Workers, Machinery	Install, maintain, and repair factory equipment and other industrial machinery.	Maintenance, Installation & Repair	★★★★★	★★★★	\$30,550 / \$45,510	High School +	RCI
Mechanical Engineering Technicians	Apply theory and principles of mechanical engineering to modify, develop, test, or calibrate machinery and equipment under the direction of engineering staff or physical scientists.	Manufacturing Production Process Development	★★★	★★★★	\$39,470 / \$55,820	Associate's degree	RI
Medical Appliance Technicians	Make or repair dentures, eyeglasses, prosthetics, and related products.	Maintenance, Installation & Repair	★★	★★★★★	\$26,100 / \$45,140	High School +	RIS
Medical Equipment Repairers	Install, maintain, and repair patient care equipment.	Maintenance, Installation & Repair	★★★	★★★	\$33,470 / \$57,410	Associate's degree	RIC
Molders, Shapers, & Casters, Except Metal & Plastic	Use tools and materials to produce items like statues, blown glass, and pottery.	Production	★★★	★★★★★	\$24,420 / \$34,340	High School +	RC
Outdoor Power Equipment & Other Small Engine Mechanics	Inspect, service, and repair motorized power equipment.	Maintenance, Installation & Repair	★★★	★★★★	\$25,470 / \$36,450	High School +	RC
Production, Planning, & Expediting Clerks	Coordinate and advance the flow of work and materials within or between an establishment's departments according to a production schedule.	Quality Assurance	★★★★★	★★★	\$29,780 / \$46,490	High School +	CE
Radio, Cellular, & Tower Equipment Installers & Repairers	Work on radio transmitting, broadcasting, and receiving equipment, as well as two-way radio communications systems.	Maintenance, Installation & Repair	★★	★★★	\$38,460 / \$52,300	Associate's degree	RC
Security & Fire Alarm Systems Installers	Install, program, maintain, and repair security and fire alarm wiring and equipment. They make sure that work meets the requirements of relevant codes.	Maintenance, Installation & Repair	★★★★★	★★★★★	\$29,080 / \$45,170	High School +	RC



# Career Stories



## Melissa Rivenbark

Cape Fear Community College  
Computer Integrated Machining

### Q: What do you like about your job?

**A:** I like working with my hands, tools and different machines.

### Q: What's the best part of your job?

**A:** I like the challenge of taking a piece of raw material and being able to turn it into anything I want. I like that every day is different.

### Q: Why is your job important?

**A:** My job is important because most of what we touch has been machined and that is made possible by machinists.

### Q: What advice do you have for people considering your career path?

**A:** Machining is a good career path because machining will always be in demand. Everyday there is something new to learn and the field continues to evolve. Machining is part of the future because it is part of everyday life.



## Dedrick McFadden

Asheville-Buncombe Technical Community College  
Brewing, Distillation, and Fermentation Intern at  
Sierra Nevada Brewing

### Q: What made you interested in this career path?

**A:** I was in the Army and in preparation in getting out, I had to decide what I wanted to do next and began homebrewing. I knew I wanted to get into the brewing industry.

### Q: What do you like about your job?

**A:** What drew me into brewing was the creative control and the ability to make things with my hands.

### Q: What's the best part of your job?

**A:** I get to be creative. It's a very fun, loud, wet, busy environment. It keeps me interested.

### Q: Where did you get your training/education?

**A:** A-B Tech Community College's Craft Beverage Institute of the Southeast gave me hands-on training in a working brewery.

### Q: What kind of training and education do you need to get this job?

**A:** It is very useful to get a hands-on education with an associate degree. I could immediately start applying what I learned with what I already knew and continue to develop.

### Q: What are your future career goals?

**A:** My future goals are to open and own my own brewery.

### Q: What advice do you have for people considering your career path?

**A:** Get your degree. It really shows that you put in the effort, you know what you are talking about, and you can apply it right away.



# Marketing

Who helps form your first opinion of a business or other organization? First impressions count, so employees from cashiers to property managers serve as important marketers. Marketing also includes jobs that have a more obvious connection with marketing such as public relations specialists and merchandise displayers and window trimmers. The main goal of employees in this cluster is to help their organization reach its objectives.

Among North Carolina's occupations in this cluster with expected above average growth are: market research analysts; marketing managers; and wholesale and retail buyers. Retail salespersons top the list of occupations with the highest projected total job openings. While many workers in the Marketing cluster need a high school education, careers that require an associate's or bachelor's degree tend to have higher wages. Workplaces that are most likely to offer marketing positions include grocery stores, warehouse clubs, gasoline stations with convenience stores, home centers, and wholesale goods businesses.

The work environment for these occupations varies by job responsibilities. While some workers have desk jobs and regular weekday schedules, others will need to be on their feet most of the time. Work in marketing and advertising can involve long work hours with pressure to be creative within short time frames to meet deadlines. People who work in this industry need strong persuasive and customer service skills.

## CAREER RESEARCH

- DECA  
[deca.org](http://deca.org)
- American Association of Advertising Agencies  
[aaaa.org](http://aaaa.org)
- International Association of Business Communicators  
[iabc.com](http://iabc.com)
- Insights Association  
[insightsassociation.org](http://insightsassociation.org)

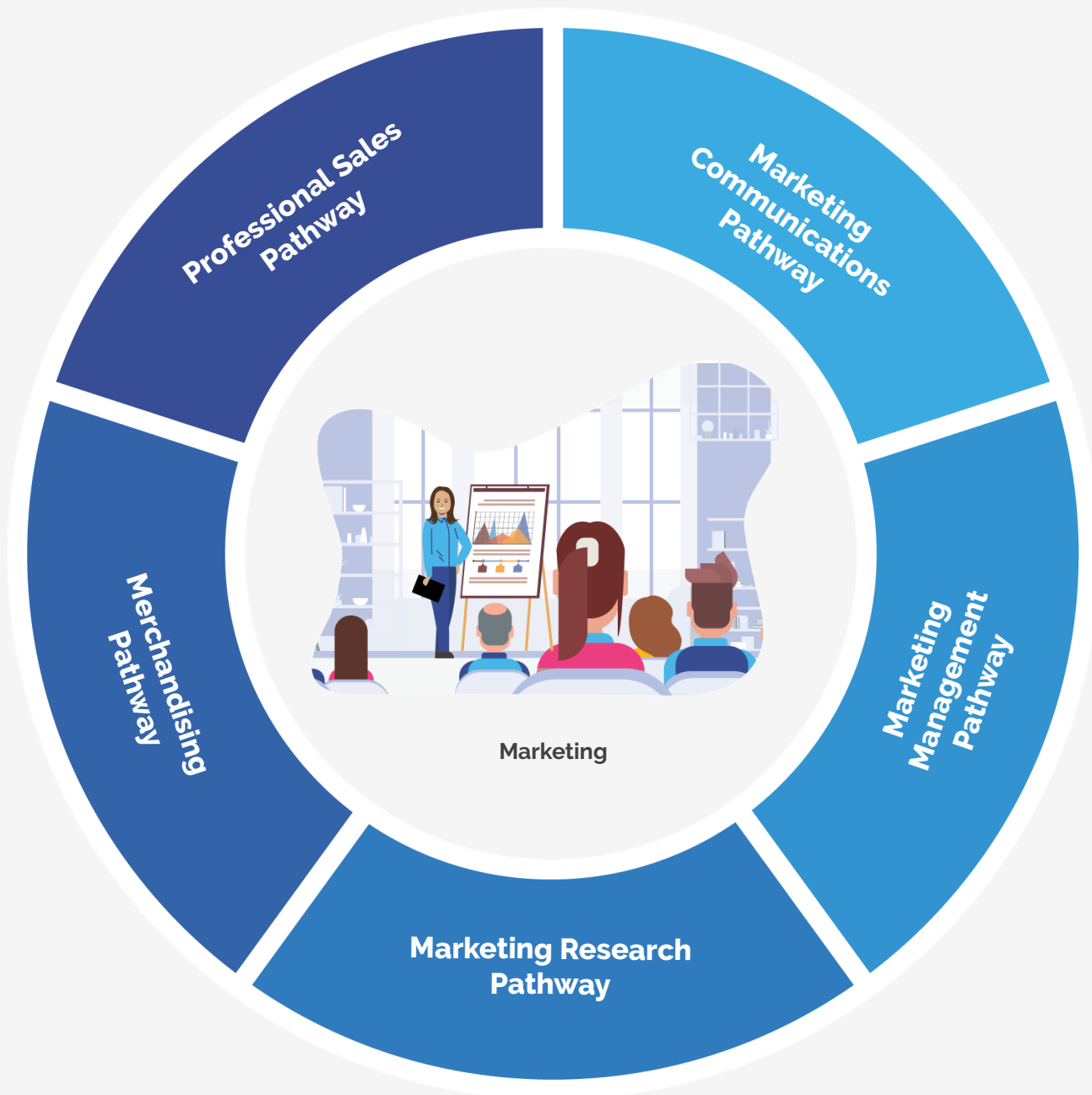
Find more  
Marketing  
Occupations:







## CAREER PATHWAYS



## CORE SKILLS

- Persuasion
- Negotiation
- Management of Financial Resources
- Service Orientation
- Social Perceptiveness
- Management of Material Resources
- Speaking
- Active Listening
- Coordination
- Time Management





## SELECTED OCCUPATIONS

### Marketing Communications Pathway

- Arts, Design, Entertainment, Sports, and Media  
*Public Relations Specialists.*

### Marketing Management Pathway

- Management  
*Advertising and Promotions Managers; Marketing Managers; Property, Real Estate, and Community Association Managers; Public Relations and Fundraising Managers; Sales Managers.*

### Marketing Research Pathway

- Business and Financial Operations  
*Market Research Analysts and Marketing Specialists.*

### Merchandising Pathway

- Arts, Design, Entertainment, Sports, and Media  
*Merchandise Displayers and Window Trimmers.*
- Business and Financial Operations  
*Wholesale and Retail Buyers, Except Farm Products.*
- Sales and Related  
*Models.*

### Professional Sales Pathway

- Sales and Related  
*Advertising Sales Agents; Cashiers; Counter and Rental Clerks; Demonstrators and Product Promoters; Door-to-Door Sales Workers, News and Street Vendors, and Related Workers; First-Line Supervisors of Non-Retail Sales Workers; First-Line Supervisors of Retail Sales Workers; Parts Salespersons; Real Estate Brokers; Real Estate Sales Agents; Retail Salespersons; Sales and Related Workers, All Other; Sales Engineers; Sales Representatives, Services, All Other; Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products; Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products; Securities, Commodities, and Financial Services Sales Agents; Telemarketers.*
- Transportation and Material Moving  
*Drivers/Sales Workers*



## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Advertising & Promotions Managers	Plan programs to create interest in a product or service. Work with art directors, sales agents, and financial staff members.	Marketing Management	★★	★★★★	\$59,780 / \$113,320	Bachelor's degree	EAC
Advertising Sales Agents	Sell advertising space to businesses and individuals.	Professional Sales	★★★★	★★★	\$27,050 / \$52,250	High School +	ECA
Counter & Rental Clerks	Receive orders, generally in person, for repairs, rentals, and services.	Professional Sales	★★★★★	★★★	\$18,160 / \$28,780	No formal educational credential	CE
Demonstrators & Product Promoters	Demonstrate merchandise and answer questions for the purpose of creating public interest in buying the product. May sell demonstrated merchandise.	Professional Sales	★★★★	★★★★	\$21,750 / \$26,410	No formal educational credential	ECR
First-Line Supervisors of Non-Retail Sales Workers	Directly supervise and coordinate activities of sales workers other than retail sales workers.	Professional Sales	★★★★★	★★	\$52,370 / \$91,410	High School +	ECS
First-Line Supervisors of Retail Sales Workers	Directly oversee and coordinate activities of retail sales workers in a business. May include work such as purchasing, budgeting, accounting, and personnel work in addition to supervisory duties.	Professional Sales	★★★★★	★	\$26,690 / \$41,610	High School +	ECS
Fundraising Managers	Coordinate campaigns that bring in donations for their organization.	Marketing Management	★★★	★★★★	\$53,920 / \$78,930	Bachelor's degree	EA
Market Research Analysts & Marketing Specialists	Research market conditions in local, regional, or national areas. Gather information to predict product or service sales or to create a marketing campaign.	Marketing Research	★★★★★	★★★★★	\$38,050 / \$64,680	Bachelor's degree	IEC
Marketing Managers	Plan, direct, and coordinate policies and programs that are designed to generate interest in a product or service.	Marketing Management	★★★★★	★★★★	\$80,140 / \$136,600	Bachelor's degree	EC
Merchandise Displayers & Window Trimmers	Plan and erect commercial displays like those in windows and interiors of retail stores and at trade exhibitions.	Merchandising	★★★★	★★★	\$24,360 / \$33,370	High School +	AER
Property, Real Estate, & Community Association Managers	Oversee many aspects of residential, commercial, or industrial property care. Ensure that property is well maintained, operates smoothly, and keeps its resale value.	Marketing Management	★★★★★	★★	\$36,200 / \$58,860	High School +	EC
Public Relations Specialists	Create and maintain a positive public image for the organization they represent. Design media releases to shape public opinion about their organization and to increase awareness of its work and goals.	Marketing Communications	★★★★	★★★★	\$35,950 / \$59,950	Bachelor's degree	EAS
Real Estate Brokers	Help clients buy, sell, and rent properties. Are licensed to manage their own real estate businesses.	Professional Sales	★★★★	★★★	\$25,770 / \$61,410	High School +	EC
Retail Salespersons	Help customers find products they want and process customers' payments.	Professional Sales	★★★★★	★★	\$17,830 / \$24,360	No formal educational credential	EC
Sales Engineers	Sell business goods or services that require a technical background equivalent to a bachelor's degree in engineering.	Professional Sales	★★★	★★★★	\$61,720 / \$96,460	Bachelor's degree	ERI
Sales Managers	Direct organizations' sales teams. Set sales goals, analyze data, and develop training programs for organizations' sales representatives.	Marketing Management	★★★★★	★★★★	\$59,380 / \$133,950	Bachelor's degree	EC
Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products	Sell goods for wholesalers or manufacturers to businesses, government agencies, and other organizations. Contact customers, explain product features, answer any questions that their customers may have, and negotiate prices.	Professional Sales	★★★★★	★★★	\$31,350 / \$63,960	High School +	CE
Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products	Sell goods for wholesalers or manufacturers using technical or scientific knowledge in subjects like biology, engineering, chemistry, or electronics.	Professional Sales	★★★★★	★★★★★	\$47,650 / \$98,350	Bachelor's degree	EC



# Career Stories



## Sylvia Bornholt

Asheville-Buncombe Technical Community College  
*Project Manager for a digital marketing agency*

### **Q: What made you interested in this career path?**

**A:** I've always liked computers and knew I wanted to do something related to graphic design. During my time with A-BTech I quickly learned that I was pretty good at web design and everything just clicked for me. I uncovered a passion that I didn't even know I had.

### **Q: Why is your job important?**

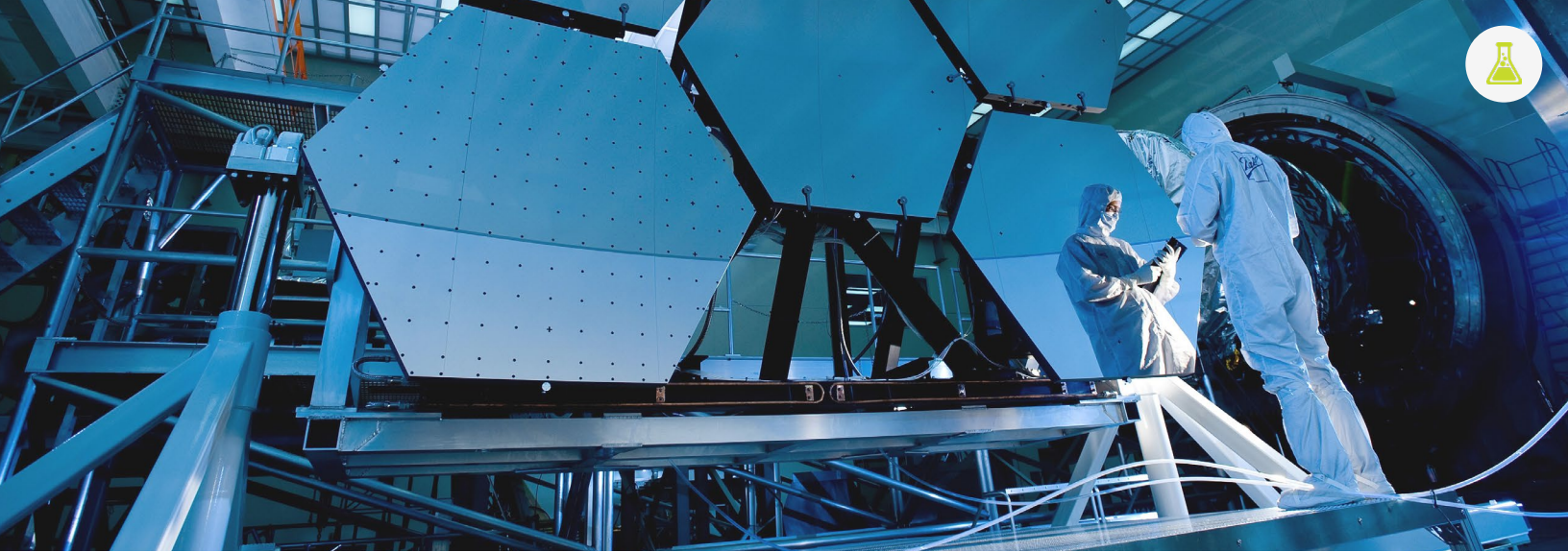
**A:** I work directly with clients and am their main point of contact responsible for answering questions and making them feel as though they are the top priority. My role is to represent my company as the "face of the project" and make sure things run smoothly from beginning to end.

Project Managers must be able to think critically, possess exceptional communication and leadership skills, work well under pressure, have the confidence and knowledge to lead both team and client meetings, be detail oriented and capable of managing multiple moving parts in order to complete each project in a timely manner while meeting client goals and knowing how or when to make adjustments as needed to ensure the project stays on schedule and within budget.

### **Q: What kind of training and education do you need to get this job?**

**A:** You'll need an understanding of web development and design with working knowledge of HTML / CSS / and responsive design to assist with overflow as needed. You'll also need a strong understanding of the WordPress CMS and should be able to comfortably make edits, install / update plugins, and work with various themes. Experience with Project Management and time tracking software, file management systems such as Google Drive and Dropbox, and experience with Adobe Photoshop and Adobe Illustrator is definitely a plus.

You really have to be somewhat of a "Jack of all trades" so to speak. If you like to solve problems and learn new things, can multitask and juggle multiple responsibilities at once, work well under pressure and love meeting new people... then Project Management might just be the career for you!



# Science, Technology, Engineering & Mathematics

What do occupations in the Science, Technology, Engineering & Mathematics (STEM) career cluster have in common?

Workers in these careers use scientific, technological, engineering, and/or mathematical processes to do research and solve problems. The problems they approach are as different as reducing our reliance on fossil fuels, developing medicines to treat mental illness, and estimating the economic impact of government policy changes. Their research can be as small as a nanoparticle or as large as the universe.

Work settings vary with the topic of STEM research. While some jobs take place in front of a computer or in a laboratory, others require people to work in outdoor environments. Schedules also depend on the focus of STEM workers' research. Some individuals have very regular hours, but others' schedules depend upon availability of the subject they analyze. Employers who are likely to hire STEM qualified workers include engineering companies; the federal, state, and local government; scientific research companies; colleges and universities; and drug manufacturers.

More than any of the other clusters, many STEM careers require at least an associate's degree or higher. Most require a bachelor's degree, and some workers need master's or doctoral-level credentials. Typical educational backgrounds for entry into five occupations that are projected to have the highest total number of openings over the next ten years in North Carolina include:

- Mechanical Engineers – Bachelor's degree
- Industrial Engineers – Bachelor's degree
- Environmental Scientists and Specialists – Bachelor's degree
- Architectural and Engineering Managers – Bachelor's degree
- Electrical Engineers – Bachelor's degree

## CAREER RESEARCH

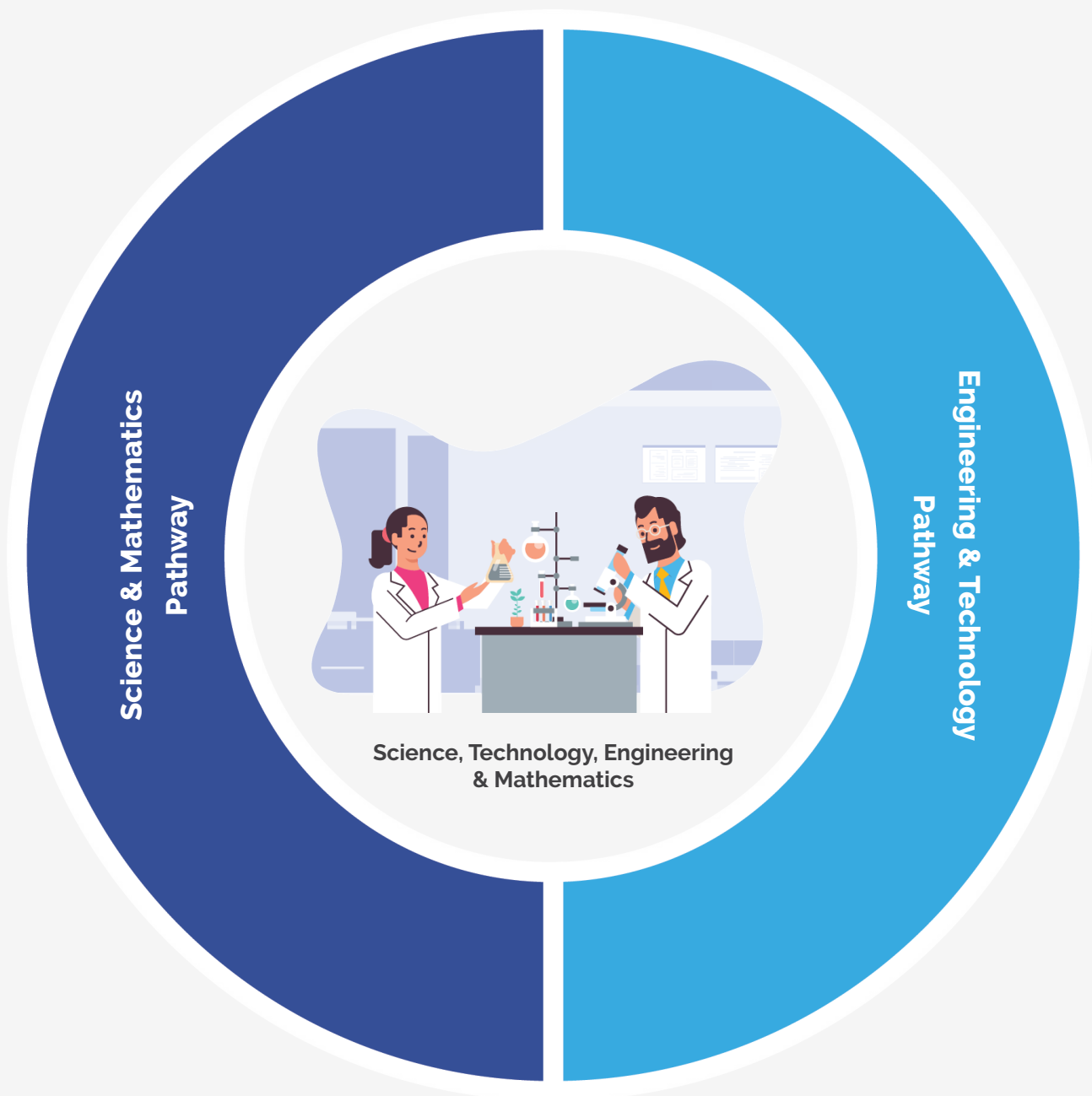
- American Geosciences Institute  
[americangeosciences.org](http://americangeosciences.org)
- Society for Industrial and Applied Mathematics  
[siam.org](http://siam.org)
- National Oceanic and Atmospheric Administration  
[noaa.gov](http://noaa.gov)
- North Carolina Biotechnology Center  
[ncbcjobs.ncbiotech.org](http://ncbcjobs.ncbiotech.org)
- New Scientist (International)  
[newscientist.com](http://newscientist.com)
- Institute of Electrical and Electronics Engineers  
[jobs.ieee.org](http://jobs.ieee.org)
- National Science Foundation  
[nsf.gov](http://nsf.gov)
- Technology Student Association  
[tsaweb.org](http://tsaweb.org)

Find more  
Science,  
Technology,  
Engineering &  
Mathematics  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Science
- Programming
- Operations Analysis
- Technology Design
- Mathematics
- Systems Analysis
- Systems Evaluation
- Writing
- Reading Comprehension
- Complex Problem Solving





## SELECTED OCCUPATIONS

### Engineering & Technology Pathway

- **Architecture and Engineering**  
*Aerospace Engineers; Biomedical Engineers; Chemical Engineers; Computer Hardware Engineers; Electrical Engineers; Electronics Engineers, Except Computer; Engineers, All Other; Health and Safety Engineers, Except Mining Safety Engineers and Inspectors; Industrial Engineers; Marine Engineers and Naval Architects; Materials Engineers; Mechanical Engineers; Mining and Geological Engineers, Including Mining Safety Engineers; Nuclear Engineers; Petroleum Engineers.*
- **Management**  
*Architectural and Engineering Managers.*

### Science & Mathematics Pathway

- **Architecture and Engineering**  
*Cartographers and Photogrammetrists.*
- **Computer and Mathematical**  
*Computer and Information Research Scientists; Mathematical Science Occupations, All Other (#); Mathematical Technicians; Mathematicians; Statisticians.*
- **Life, Physical, and Social Science**  
*Agricultural and Food Science Technicians (#); Anthropologists and Archeologists; Astronomers; Atmospheric and Space Scientists; Biochemists and Biophysicists; Biological Scientists, All Other; Chemists; Conservation Scientists; Economists; Environmental Scientists and Specialists, Including Health; Geographers; Geological and Petroleum Technicians (#); Geoscientists, Except Hydrologists and Geographers; Historians; Hydrologists; Life Scientists, All Other; Life, Physical, and Social Science Technicians, All Other (#); Materials Scientists; Microbiologists; Physical Scientists, All Other; Physicists; Political Scientists; Social Science Research Assistants; Social Scientists and Related Workers, All Other; Sociologists; Survey Researchers; Urban and Regional Planners.*

NC TOWER (North Carolina's Tool for Online Workforce and Education Reporting) is an online tool providing employment and wage information on more than 1.2 million students who graduated from public universities, community colleges, and high schools in North Carolina for the last 20 years.

<https://tower.nc.gov/>





## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Aerospace Engineers	Perform engineering duties involved in designing, building, and testing aircraft, missiles, and spacecraft. May conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture.	Engineering and Technology	★★	★★★★★	\$65,380 / \$99,590	Bachelor's degree	IR
Anthropologists & Archeologists	Study the origin, development, and behavior of humans.	Science and Mathematics	★	★★★★★	\$39,500 / \$67,530	Master's degree	IAR
Atmospheric & Space Scientists	Study the weather and climate.	Science and Mathematics	★	★★★★★	\$45,610 / \$94,280	Bachelor's degree	IR
Biochemists & Biophysicists	Study the chemical and physical principles of living things and of biological processes like cell development, growth, and heredity.	Science and Mathematics	★★	★★★★★	\$54,800 / \$87,740	Doctoral or professional degree	IAR
Cartographers & Photogrammetrists	Collect, measure, and interpret geographic information to create maps and charts for political, educational, and other purposes.	Science and Mathematics	★★	★★★★	\$36,470 / \$59,320	Bachelor's degree	RIC
Chemical Engineers	Apply the principles of chemistry, biology, physics, and mathematics to solve problems involved in producing many products. Design processes, test methods, and design equipment for large-scale manufacturing production.	Engineering and Technology	★★	★★★★★	\$56,670 / \$101,840	Bachelor's degree	IR
Chemists	Study substances at the atomic and molecular levels and the ways in which substances react with each other. Use chemistry knowledge for quality control and new product development.	Science and Mathematics	★★★★★	★★★★	\$44,110 / \$66,560	Bachelor's degree	IRC
Computer & Information Research Scientists	Design innovative uses for new and existing computing technology.	Science and Mathematics	★	★★★★★	\$67,180 / \$94,310	Master's degree	IRC
Economists	Collect and analyze data, research trends, and evaluate economic issues for resources, goods, and services.	Science and Mathematics	★	★★★★★	\$53,580 / \$97,520	Master's degree	ICE
Electrical Engineers	Design, develop, test, and supervise the manufacture of electrical equipment like electric motors, radar and navigation systems, communications systems, or power generation equipment. May design the electrical systems of automobiles and aircraft.	Engineering and Technology	★★★★★	★★★★★	\$61,030 / \$96,580	Bachelor's degree	IR
Environmental Scientists & Specialists, Including Health	Use knowledge of the natural sciences to protect the environment and human health. May clean up polluted areas, advise policy makers, or work with industry to reduce waste.	Science and Mathematics	★★★★★	★★★★★	\$42,570 / \$61,860	Bachelor's degree	IRC
Geoscientists, Except Hydrologists & Geographers	Study the Earth's composition, structure, and processes to learn about its past, present, and future.	Science and Mathematics	★★	★★★★★	\$48,910 / \$64,620	Bachelor's degree	IR
Health & Safety Engineers, Except Mining Safety Engineers & Inspectors	Plan, implement, and coordinate safety programs using knowledge of health or safety and systems engineering. Develop procedures and design systems to keep people from getting sick or injured and to keep property from being damaged.	Engineering and Technology	★★	★★★★★	\$56,310 / \$89,610	Bachelor's degree	IR
Industrial Engineers	Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination.	Engineering and Technology	★★★★★	★★★★★	\$56,000 / \$83,850	Bachelor's degree	IR
Mechanical Engineers	Research, design, develop, build, and test mechanical and thermal devices such as tools, engines, machines, and heating systems. May also oversee installation, operation, maintenance, and repair of equipment like gas, water, and steam systems.	Engineering and Technology	★★★★★	★★★★★	\$54,480 / \$81,750	Bachelor's degree	IRC
Microbiologists	Study microorganisms such as bacteria, viruses, algae, fungi, and some types of parasites.	Science and Mathematics	★★	★★★★★	\$43,190 / \$62,450	Bachelor's degree	IR
Sociologists	Study society and social behavior.	Science and Mathematics	★	★★★★★	\$60,820 / \$109,050	Master's degree	IAS
Statisticians	Use statistical methods to collect and analyze data and help solve real-world problems in business, engineering, the sciences, or other fields.	Science and Mathematics	★★★★★	★★★★★	\$57,450 / \$100,480	Master's degree	CI



# Career Stories



**Mya Sencenbaugh**

Sandhills Community College  
*Civil Engineering Technology*

**Q: What made you interested in this career path?**

**A:** I'm a problem solver and I like to see things get done. When I learned that architecture and civil engineering used my skill set, it was really cool to think that I could one day drive by a project that I helped complete. Also, the fact that I could get a great job with a 2-year degree really appealed to me.

**Q: Why is your job important?**

**A:** My job gives people the things they need to operate on a daily basis. The infrastructure that my company designs helps people get clean water or drive across safe bridges.

**Q: Where did you get your training/education?**

**A:** I received my education at Sandhills Community College. I graduated with an Associate of Applied Science in Architectural Technology and an Associate of Applied Science in Civil Engineering Technology.

**Q: What kind of training and education do you need to get this job?**

**A:** For an entry level position, like where I started out, you would need at least a 2-year degree. If you wanted to take on a bigger role and have more responsibility, you would need to get a 4- year degree. Ultimately, the best qualification in my field would be to become a licensed PE (Professional Engineer).

**Q: How did you get your current job?**

**A:** The Engineering & Construction Department at Sandhills does a great job of helping students network with potential employers and build relationships with local companies. Ms. McManamon and Ms. Ginny work really hard to schedule lunch and learns, mock interviews, and career exploration events so we can meet great local employers and build relationships that lead to employment. I met the professionals at LKC through a lunch and learn event and then had the opportunity to interview with them and accept a job before I graduated.

**Q: What advice do you have for people considering your career path?**

**A:** I would say don't be scared! There aren't a lot of girls in engineering, but that's ok. I was really fortunate to have great mentors in my department that helped me reach my full potential. It isn't the easiest major to choose, but the hard work pays off. I received multiple job offers with great benefits after I graduated from Sandhills.



# Transportation, Distribution & Logistics

Transportation keeps our economy, people, and products moving. Occupations involved in transporting, distributing, and coordinating the movement of goods range from airline pilots to mechanics to logisticians. Additionally, this cluster includes occupations related to warehouse storage, including jobs like cargo and freight agents and non-emergency dispatchers.

Most of this career cluster's activities take place on the ground via highways and railroads, but the cluster also includes workers who move people and products over the water and through the air. Work environments vary by occupation. While some truck drivers may work long hours and travel long distances, people who work in warehouses are more likely to work eight-hour shifts. Physical strength is necessary for some jobs, while word processing and spreadsheet skills are priorities in others.

For the Transportation, Distribution and Logistics career cluster, the greatest number of new jobs in North Carolina are projected to include heavy and tractor-trailer truck drivers; laborers, and freight stock, and material movers; hand packers and packagers; and automotive service technicians and mechanics. Many jobs require a high school education, but postsecondary education – usually no higher than a bachelor's degree – is needed for some occupations. Workers often find jobs in temporary service agencies, long distance freight trucking businesses, new car dealerships, warehouse and storage facilities, or express delivery companies.

## CAREER RESEARCH

- American Trucking Associations [trucking.org](http://trucking.org)
- Global Cold Chain Alliance [gcca.org](http://gcca.org)
- Association of American Railroads [aar.org](http://aar.org)
- Airlines for America [airlines.org](http://airlines.org)
- Jobs in Motion [jobsinmotion.com](http://jobsinmotion.com)
- SkillsUSA [skillsusa.org](http://skillsusa.org)

Find more  
Transportation,  
Distribution  
& Logistics  
Occupations:





## CAREER PATHWAYS



## CORE SKILLS

- Repairing
- Equipment Maintenance
- Operation and Control
- Troubleshooting
- Installation
- Operations Monitoring
- Equipment Selection
- Quality Control Analysis
- Time Management
- Coordination





## SELECTED OCCUPATIONS

### Facility & Mobile Equipment Maintenance Pathway

- **Construction and Extraction**  
*Rail-Track Laying and Maintenance Equipment Operators.*
- **Installation, Maintenance, and Repair**  
*Aircraft Mechanics and Service Technicians; Automotive Body and Related Repairers; Automotive Glass Installers and Repairers; Automotive Service Technicians and Mechanics; Avionics Technicians; Bicycle Repairers; Bus and Truck Mechanics and Diesel Engine Specialists; Electrical and Electronics Installers and Repairers, Transportation Equipment; Electronic Equipment Installers and Repairers, Motor Vehicles; Mobile Heavy Equipment Mechanics, Except Engines; Motorboat Mechanics and Service Technicians; Motorcycle Mechanics; Rail Car Repairers; Recreational Vehicle Service Technicians; Signal and Track Switch Repairers; Tire Repairers and Changers.*
- **Transportation and Material Moving**  
*Automotive and Watercraft Service Attendants; Cleaners of Vehicles and Equipment*

### Logistics Planning & Management Services Pathway

- **Business and Financial Operations**  
*Logisticians.*
- **Management**  
*Transportation, Storage, and Distribution Managers.*
- **Office and Administrative Support**  
*Dispatchers, Except Police, Fire, and Ambulance.*

### Sales & Service Pathway

- **Office and Administrative Support**  
*Billing and Posting Clerks; Cargo and Freight Agents.*
- **Transportation and Material Moving**  
*Parking Lot Attendants.*

### Transportation Operations Pathway

- **Office and Administrative Support**  
*Couriers and Messengers*
- **Personal Care and Service**  
*First-Line Supervisors of Personal Service Workers.*
- **Transportation and Material Moving**  
*Aircraft Cargo Handling Supervisors; Airline Pilots, Copilots, and Flight Engineers; Ambulance Drivers and Attendants, Except Emergency Medical Technicians; Bridge and Lock Tenders; Bus Drivers, School or Special Client; Bus Drivers, Transit and Intercity; Captains, Mates, and Pilots of Water Vessels; Commercial Pilots; Excavating and Loading Machine and Dragline Operators; First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand; First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators; Flight Attendants; Gas Compressor and Gas Pumping Station Operators; Heavy and Tractor-Trailer Truck Drivers; Industrial Truck and Tractor Operators; Laborers and Freight, Stock, and Material Movers, Hand; Light Truck or Delivery Services Drivers; Loading Machine Operators, Underground Mining; Locomotive Engineers; Locomotive Firers; Motor Vehicle Operators, All Other; Motorboat Operators; Packers and Packagers, Hand; Pump Operators, Except Wellhead Pumps; Rail Transportation Workers, All Other; Rail Yard Engineers, Dinkey Operators, and Hostlers; Railroad Conductors and Yardmasters; Sailors and Marine Oilers; Ship Engineers; Subway and Streetcar Operators; Tank Car, Truck, and Ship Loaders; Taxi Drivers and Chauffeurs; Transportation Attendants, Except Flight Attendants; Transportation Workers, All Other; Wellhead Pumps.*

### Transportation Systems/Infrastructure Planning, Management & Regulation Pathway

- **Transportation and Material Moving**  
*Air Traffic Controllers; Airfield Operations Specialists; Traffic Technicians.*

## SELECTED CAREERS

\* See data sources and notes about Selected Careers on page 126.

+ Certifications and/or degrees are available through NC Community Colleges to help a candidate become more competitive in the marketplace

Occupation	Job Description	Career Pathway	10-Year Openings	NC Annualized Growth Rate	Annual Entry/ Median Wages	Minimum Education	Interest Areas
Air Traffic Controllers	Control air traffic on and within the vicinity of airports and movement of air traffic between altitude sectors and control centers according to established procedures and policies.	Transportation Systems/Infrastructure Planning, Management and Regulation	★★	★★	\$73,590 / \$96,510	Associate's degree	EC
Aircraft Cargo Handling Supervisors	Oversee and coordinate the activities of ground crew in the loading, unloading, securing, and staging of aircraft cargo or baggage.	Transportation Operations	★	★★★★	\$35,580 / \$54,760	High School +	ER
Aircraft Mechanics & Service Technicians	Repair and perform scheduled maintenance on aircraft. Perform aircraft inspections as required by the Federal Aviation Administration (FAA).	Facility and Mobile Equipment Maintenance	★★★★	★★★★	\$37,200 / \$61,340	Postsecondary nondegree award	RCI
Airline Pilots, Copilots, & Flight Engineers	Pilot and navigate the flight of fixed-wing, multi-engine aircraft, usually on scheduled air carrier routes. Transport passengers and cargo.	Transportation Operations	★★★★	★★★★	\$89,510 / \$112,290	Bachelor's degree	RCI
Automotive Service Technicians & Mechanics	Inspect, maintain, and repair cars and light trucks.	Facility and Mobile Equipment Maintenance	★★★★★	★★	\$23,450 / \$42,840	Postsecondary nondegree award	RIC
Avionics Technicians	Install, inspect, test, adjust, or repair avionics equipment such as radar, radio, navigation, and missile control systems in aircraft or space vehicles.	Facility and Mobile Equipment Maintenance	★★	★★★★	\$37,060 / \$53,710	Associate's degree	RIC
Billing & Posting Clerks	Do administrative work for many types of organizations. Keep records, help customers, and carry out financial transactions.	Sales and Service	★★★★★	★★	\$27,550 / \$37,040	High School +	CES
Bus & Truck Mechanics & Diesel Engine Specialists	Inspect, repair, or overhaul buses, trucks, and anything else with a diesel engine.	Facility and Mobile Equipment Maintenance	★★★★★	★★★★	\$33,660 / \$48,260	High School +	RC
Bus Drivers, Transit & Intercity	Transport people between locations like workplaces, schools, shopping malls, and across state and national borders. Drive regular routes, and others transport passengers on chartered trips or sightseeing tours.	Transportation Operations	★★★★	★★★★★	\$21,950 / \$32,130	High School +	RS
Captains, Mates, & Pilots of Water Vessels	Operate and maintain vessels that take cargo and people over water.	Transportation Operations	★★	★★★★	\$18,920 / \$56,920	Postsecondary nondegree award	REC
Cargo & Freight Agents	Expedite and route incoming and outgoing cargo and freight in airline, train, and trucking terminals, and on shipping docks. Take orders from customers and help determine shipping charges and tariffs.	Sales and Service	★★★★	★★★★	\$30,780 / \$45,950	High School +	CE
Commercial Pilots	Fly and navigate airplanes, helicopters, and other aircraft. May provide charter flights, rescue operations, firefighting support, aerial photography, and aerial application of agricultural materials.	Transportation Operations	★★★	★★★★	\$56,910 / \$99,300	High School +	RIE
Dispatchers, Except Police, Fire, & Ambulance	Schedule and dispatch workers, work crews, equipment, or service vehicles for moving materials, freight, or passengers. They do the same for normal installation, service, or emergency repair work done outside the place of business.	Logistics Planning and Management Services	★★★★	★★★	\$22,980 / \$39,100	High School +	CRE
Electrical & Electronics Installers & Repairers, Transportation Equipment	Install or repair a variety of electrical equipment.	Facility and Mobile Equipment Maintenance	★	★★★	\$38,300 / \$62,790	Postsecondary nondegree award	RC
Flight Attendants	Provide routine services and respond to emergencies to ensure the safety and comfort of airline passengers.	Transportation Operations	★★★★★	★★★★★	\$35,670 / \$67,670	High School +	ESC
Logisticians	Analyze and coordinate an organization's supply chain, the process that moves a product from supplier to consumer. Manage the entire life cycle of a product, including how a product is obtained, distributed, assigned, and delivered.	Logistics Planning and Management Services	★★★★★	★★★★★	\$42,640 / \$67,950	Bachelor's degree	EC
Mobile Heavy Equipment Mechanics, Except Engines	Inspect, maintain, and repair vehicles and machinery like the cranes, bulldozers, and graders used in construction, farming, rail transportation, surface mining, and other industries.	Facility and Mobile Equipment Maintenance	★★★★	★★★★★	\$34,150 / \$50,340	High School +	RC
Motorboat Mechanics & Service Technicians	Inspect, service, and repair motorized power equipment.	Facility and Mobile Equipment Maintenance	★★★	★★★★	\$26,780 / \$38,710	High School +	RCI
Signal & Track Switch Repairers	Install, inspect, test, maintain, or repair electric gate crossings, signals, signal equipment, track switches, section lines, or intercommunications systems within a railroad system.	Facility and Mobile Equipment Maintenance	★	★★	\$50,700 / \$88,550	High School +	RC



# Career Stories



## Patrick Stephens

James Sprunt Community College  
*Diesel Mechanic*

### Q: Why is your job important?

**A:** My job is important because the work I do keeps the supply chain moving. Diesel trucks move freight all over the country, transporting anything from groceries to industrial supply parts.

### Q: What would interest others about your job?

**A:** This job is not for everyone. It can be hot, cold, in the rain, dirty, and tiring. A positive about the job is once you fix the issue with the truck, you get immediate gratification.

### Q: How/Where did you start in your career?

**A:** I started in my career by taking classes through James Sprunt CC when I later got hired by a trucking Dealer as a service technician.

### Q: What are your future career goals?

**A:** I would like to continue my education and obtain a BS degree in Business Management. From there work in a management position for a company that handles service and repairs on trucks.

### Q: What advice do you have for people considering your career path?

**A:** If I had to give any advice to someone looking into this field, it would be: ask questions, pay attention to what your instructors and co-workers say and do. Be humble and teachable. This profession is not going anywhere anytime soon and there are plenty of room for advancement opportunities.



## Augustina Mendez-Augustin

Blue Ridge Community College  
*Automotive Intern*

### Q: What made you interested in this career path?

**A:** For me, my interest started from a young age. When I was about six or seven years old, I was working on cars with my father, Manuel. So my interest started early.

### Q: What's the best part about your job?

**A:** The best part about it is the variety I see every day. I never know what each day is going to hold. Plus, I love learning where each part fits and works in a vehicle.

### Q: What does a typical day look like for you?

**A:** It can vary. I never know if I'll be sending orders in, giving price estimates, picking the right parts, responding to customer emails, or a combination of everything.

### Q: What are your future career goals?

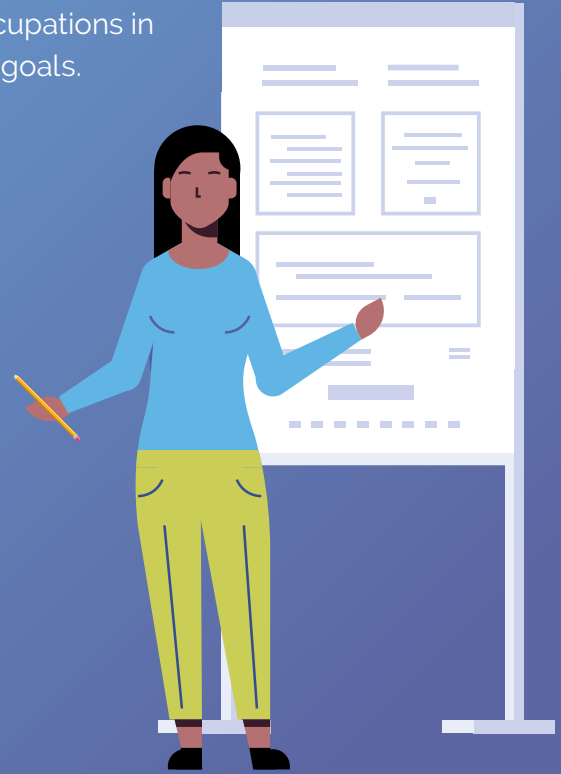
**A:** I see myself continuing to work in the automotive industry. I'm fascinated by vehicles and I want to learn as much as I can so I can keep growing in this field.

# Setting Goals?

Now that you have found your interests and explored occupations in the first two sections, the next step is to set some career goals.

Goals should not only be about identifying the job you want, but about how you plan to achieve it. Ultimately, this requires an understanding about how to grow your career. Growing in your career can be defined in several ways, including taking on additional responsibility, gaining more experience and, of course, earning a higher salary.

This is important because having goals keeps you focused on where you want to go. Setting goals has several benefits including: constantly giving guidance and direction, facilitation planning, motivation and inspiration as well as allowing for evaluation.



## Where to get help with Goal Setting

No matter where you are in your career journey, there's someone here to help you.

### Middle School or High School Students

Talk to your School Counselor or Career Development Coordinator (CDC).



SCHOOL COUNSELOR



CAREER DEVELOPMENT COORDINATOR (CDC)

### Community College or University Students

Visit your school's career center.



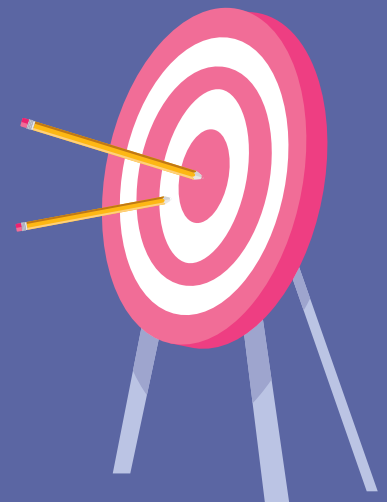
COMMUNITY COLLEGE CAREER CENTER



UNIVERSITY CAREER CENTER

### Not Enrolled in School

Visit your local NCWorks Career Center.



# Career Planning Tools

## First Step/Next Step

According to the US Bureau of Labor Statistics, the average American *holds* over 12 jobs by the time they *reach* age 55 – and half of those jobs *occur* before age 25. The report highlights that changing jobs and increased education, especially while you're early in your career, can lead to a rapid increase in pay. You should not just *expect a lot of change* in your career, but plan for it. Planned job changes should create better pay and benefits, increased responsibility, or increased job satisfaction – or preferably all of the above. How can you plan changes that *best* meet your career goals?

NCcareers.org has tools to help you identify more than a single occupation, but potentially connected jobs. The **Next Step** and **First Step** tools use data to identify related occupations - those that require similar skills and knowledge but typically pay more – providing a potential path to career advancement.



The **Next Step** tool was developed to guide users with a known starting job to identify occupations that can advance their career. It provides a list of occupations that typically pay more to help workers understand how they can increase their earnings. The occupation may also require more education and/or experience so it allows a career planner to understand the path to earning more money.



The **First Step** tool works the same way as the Next Step tool, but in reverse. During career exploration, you may have your sights set on an occupation you are not yet prepared for. Using this tool, you can find jobs that are typically a step down – i.e. pay a little less and may have lower education requirements or require less experience.





## What Can I Do With My Education?

Before you decide on an education credential, it's important to know what you can do with it. Maybe you already completed your education but didn't think ahead of time about how to use it to get a job. The **What Can I Do With My Education** tool in [NCcareers.org](https://www.nccareers.org) can help. Enter the name of an educational program and degree level and discover the occupations that best align with your academic qualifications.



Matching occupations come with three different indicators: **“Good Match”**, **“Good Match with appropriate skills, knowledge and experience”**, or **“Potential Match”**.

- A **“Good Match”** indicates that your program likely helped you develop the skills, knowledge, and experience necessary to be successful in that occupation.
- A **“Good Match with appropriate skill, knowledge, or experience”** means your degree or credential helped you develop *most* of the skills, knowledge and experience necessary for the position, but you may also need to develop additional ones to be successful in the job. These skills may be acquired through additional course work, or experience at a previous job.
- A **“Potential Match”** implies that your education may be acceptable to an employer, but it did not necessarily help you develop a significant number of skills, knowledge or experience required to be successful for the job. This may require you to expand on your qualifications by highlighting relevant skills, knowledge, and experience on your resume or providing additional explanation through a cover letter.

Each occupation also has an education level descriptor such as “Your education meets the typical minimum required”, “You may be underqualified based on your education level and need additional education”, or “You may have more education than needed, but this could give you a leg up.” **These descriptors are based on the Bureau of Labor Statistics minimum education required data and represent the typical minimum education level required to be successful working in an occupation.** Often additional education may be desired for in-demand jobs or during times of high unemployment. When there is a labor shortage and employers are having trouble filling positions, employers may be willing to hire candidates who show an ability and desire to do the work but lack formal education credentials.



# Education and Training

North Carolina has a strong education and training system, which is important given how employers often seek to hire individuals with a certain level or type of education or training.

After high school, there are a variety of education and training options:

- North Carolina community colleges (58 public postsecondary institutions that offer education and training that generally takes two years or less to complete).
- Public UNC System colleges or universities (16 colleges/universities offering four-year bachelor's degrees and a variety of advanced and professional degrees).
- Independent colleges or universities (private postsecondary institutions that offer two-year degrees, four-year degrees, and/or advanced or professional degrees).
- Other training providers.

It is important to have in mind what kind of careers you may want to pursue as you consider the postsecondary education or training path that is right for you.

Note that there are pathways between types of postsecondary education. For example, certain associate's degrees at community colleges are designed for students to transfer easily to a four-year college or university for their junior and senior years to earn a bachelor's degree. Also, some people who earn an academic degree (such as a bachelor's degree) may later obtain more specialized training or credentials for their chosen career in another postsecondary education or training program, at the same or another type of institution.

## Community Colleges

Community colleges offer many different kinds of education and training options.

Here are some examples:

- Academic programs leading to an academic credential (Certificate, Diploma, or Degree).
  - Some are designed to lead a student directly into the workforce after completion, such as Career and Technical Education programs.
  - Some associate's degree programs are designed for "College Transfer" – to be able to transfer to another college or university, often to be able to complete a bachelor's degree.
- Short-term workforce training (weeks or months of job training) to prepare for specific jobs, usually not for college credit, but often students earn an industry-recognized credential.
- Programs for those who have not yet earned their high school diploma to earn their high school diploma as an adult or take tests to earn their high school equivalency.
- Programs for English Language Learners to learn English in order to pursue further education or training, or to have the language skills for the workplace.
- Entrepreneurship courses and business counseling.
- Apprenticeship programs, work-based learning courses, and other work-based or simulated work opportunities to understand what it is like to work in a specific field.
- Dual enrollment programs (such as Career and College Promise) that enable high school students to take community college courses while still in high school.

On the following pages, several types of community college program areas are highlighted.

### HOW LONG WILL IT TAKE TO EARN A CREDENTIAL?

Typical time to earn an academic credential from a Community College, if you're studying as a full-time student:

- **Certificate**  
One semester
- **Diploma**  
Two semesters plus summer session
- **Degree**  
Two years
  - Associate in Applied Arts/Science to prepare for employment  
OR
  - Associate in Arts/Science to transfer to a four-year college/university.

## PROGRAM HIGHLIGHTS: REGISTERED APPRENTICESHIP



### Victor Hall

Surry Community College  
HVAC Apprentice

#### Q: What made you interested in this career path?

A: I started with an internship as a custodian, and once that was over the opportunity to go to the maintenance department opened up. I am now able to expand my knowledge with the apprenticeship.

#### Q: What do you like about your job?

A: Everything. Critical thinking – this job really pushes you to think out of the box sometimes; Electricity – this has been one of the best things to learn about; Being able to see hard work pay off – seeing a project all the way through is rewarding.

#### Q: Where did you get your training/education?

A: I am part of the apprenticeship program, which means I attend Surry Community College, and also get training on the job.

#### Q: Where do you see yourself in five years?

A: Staying on the maintenance side of the school system.

## THE ADVANTAGES OF REGISTERED APPRENTICESHIP

Registered Apprenticeships offer advantages for both job seekers and employers – a true win-win situation: You get to learn skills that an employer needs, and the employer gets a qualified worker.

A few other benefits could include:

- You earn a paycheck that gradually increases as you learn new skills.
- In addition to providing hands-on training, your employer may pay for you to earn college credit.
- Your employer may hire you after you've successfully completed your apprenticeship.
- You may receive an industry certification that you can use anywhere in the country.

For more information about apprenticeships, visit [apprenticeshipnc.com](http://apprenticeshipnc.com)



## PROGRAM HIGHLIGHTS: CAREER AND TECHNICAL EDUCATION

Career and Technical Education (CTE) programs are designed to result in academic credentials that qualify individuals for a variety of careers upon completion, without a need for further education.

There are programs across all the career clusters. Some examples of careers for which these prepare students include the following:

- Veterinary Technician (“Vet Tech”)
- Construction Manager
- Graphic Designer
- Network Administrator
- Medical Assistant
- Engineering Technician
- Production Technician (manufacturing)
- Detective
- Bookkeeper

Many CTE programs offer opportunities for apprenticeships, internships, work-based learning courses, or other types of opportunities for career exposure or immersion.

CTE programs can vary in length, depending on the requirements of the career field (whether it requires a certificate, diploma, or degree) or how far a student wants to go in the field. Community colleges develop programs with input from employers, based on the hiring opportunities in the area or region. It is not required to take CTE courses in high school to pursue a CTE program in a community college, but the pathways between high schools and community colleges are designed to fit together, so those that do may be able to progress through the required college coursework more quickly.

CTE students are prepared for jobs and careers directly out of community college, and they may also choose to continue their education.

For more information on Career and Technical Education, see *What Is CTE?* at [www.acteonline.org/why-cte/what-is-cte](http://www.acteonline.org/why-cte/what-is-cte)



## PROGRAM HIGHLIGHTS: COLLEGE AND CAREER READINESS

North Carolina's 58 community colleges offer College and Career Readiness programs, also known at some colleges as Adult Education or Transition Services.

The primary purposes of these programs are:

- To help students that need additional academic skills to succeed in college (Basic Skills or Developmental Education)
- To help adults earn a high school diploma or high school equivalency in order to enroll in college or qualify for in-demand jobs
- To help English language learners who would benefit from English language instruction

In recent years, there has been an emphasis on connecting College and Career Readiness education programs with other education or training in the community colleges that allow a student to earn an industry credential or college certificate, diploma, or associate's degree.

There are 75 Approved Career and College Readiness Pathways at NC Community Colleges in the following areas:


- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Business, Management, and Administration
- Education & Training
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Manufacturing
- Marketing
- Transportation, Distribution, & Logistics



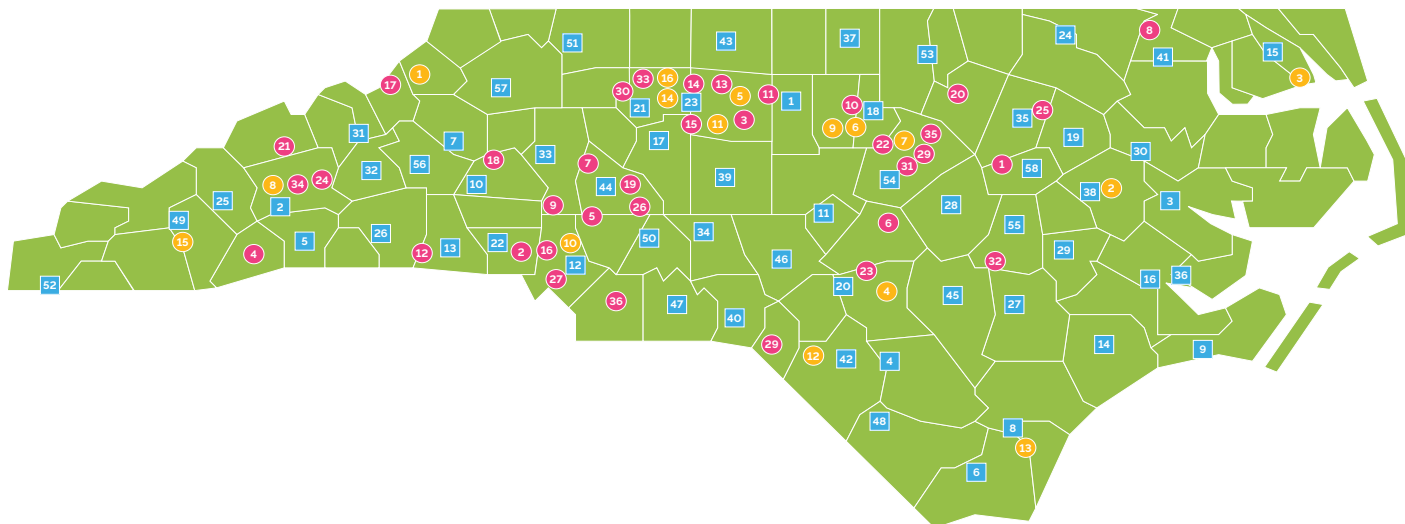


# Locating Education Options

Prepare for work through training. Explore your education options by visiting NC's colleges.


 <b>North Carolina Community College System</b>		
1. Alamance Community College	21. Forsyth Technical Community College	40. Richmond Community College
2. Asheville-Buncombe Technical Community College	22. Gaston College	41. Roanoke-Chowan Community College
3. Beaufort County Community College	23. Guilford Technical Community College	42. Robeson Community College
4. Bladen Community College	24. Halifax Community College	43. Rockingham Community College
5. Blue Ridge Community College	25. Haywood Community College	44. Rowan-Cabarrus Community College
6. Brunswick Community College	26. Isothermal Community College	45. Sampson Community College
7. Caldwell Community College and Technical Institute	27. James Sprunt Community College	46. Sandhills Community College
8. Cape Fear Community College	28. Johnston Community College	47. South Piedmont Community College
9. Carteret Community College	29. Lenoir Community College	48. Southeastern Community College
10. Catawba Valley Community College	30. Martin Community College	49. Southwestern Community College
11. Central Carolina Community College	31. Mayland Community College	50. Stanly Community College
12. Central Piedmont Community College	32. McDowell Technical Community College	51. Surry Community College
13. Cleveland Community College	33. Mitchell Community College	52. Tri-County Community College
14. Coastal Carolina Community College	34. Montgomery Community College	53. Vance-Granville Community College
15. College of The Albemarle	35. Nash Community College	54. Wake Technical Community College
16. Craven Community College	36. Pamlico Community College	55. Wayne Community College
17. Davidson County Community College	37. Piedmont Community College	56. Western Piedmont Community College
18. Durham Technical Community College	38. Pitt Community College	57. Wilkes Community College
19. Edgecombe Community College	39. Randolph Community College	58. Wilson Community College

 <b>Public Universities</b>		
1. Appalachian State University	7. North Carolina State University	13. UNC Wilmington
2. East Carolina University	8. UNC Asheville	14. UNC School of the Arts
3. Elizabeth City State University	9. UNC Chapel Hill	15. Western Carolina University
4. Fayetteville State University	10. UNC Charlotte	16. Winston-Salem State University
5. North Carolina A&T State University	11. UNC Greensboro	
6. North Carolina Central University	12. UNC Pembroke	



 <b>Independent Colleges and Universities</b>		
1. Barton College	13. Greensboro College	25. N.C. Wesleyan College
2. Belmont Abbey College	14. Guilford College	26. Pfeiffer University
3. Bennett College	15. High Point University	27. Queens University of Charlotte
4. Brevard College	16. Johnson C. Smith University	28. St. Andrews University
5. Cabarrus College of Health Sciences	17. Lees-McRae College	29. Saint Augustine's University
6. Campbell University	18. Lenoir-Rhyne University	30. Salem College
7. Catawba College	19. Livingstone College	31. Shaw University
8. Chowan University	20. Louisburg College	32. University of Mount Olive
9. Davidson College	21. Mars Hill University	33. Wake Forest University
10. Duke University	22. Meredith College	34. Warren Wilson College
11. Elon University	23. Methodist University	35. William Peace University
12. Gardner-Webb University	24. Montreat College	36. Wingate University

Discover which NC College or University has the education program that interests you with NCcareers.org's **Program Locator tool**, then link over to [CFNC.org](http://CFNC.org) to learn more about the school.



# Job Search

## Understanding the Job Search Process

There are multiple steps to securing a job once you know what you're looking for.

### 1. Find the jobs available now.

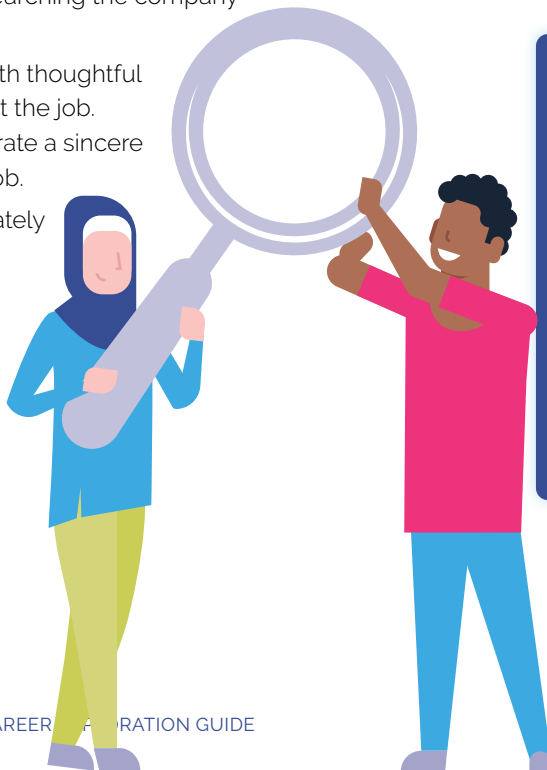
- Start on online job boards like [NCWorks.gov](https://www.ncworks.gov), [Indeed.com](https://www.indeed.com), or [LinkedIn](https://www.linkedin.com).
- Many jobs are available by word-of-mouth or direct from an employer's establishment.
- Use friends and acquaintances to "network" and expand your job search.

### 2. Fully complete the application process.

- Employers can require an application, resume, references, and/or an example of your work.
- A cover letter could be helpful to highlight your experience and qualities.
- Ensure your application and/or resume addresses the key duties and requirements of the job listed in the ad.
- Read the entire job ad and provide what the employer asks for.

### 3. Ace the interview process.

- There could be multiple interviews, test(s), a live demonstration of your work, and more.
- Prepare by researching the company and position.
- Be prepared with thoughtful questions about the job. It can demonstrate a sincere interest in the job.
- Dress appropriately and make solid eye contact.



### PREPARE FOR YOUR JOB SEARCH

'Job' and 'career' are similar terms, but knowing the difference and planning with a *career-oriented mindset* can help build a better future.



### HOW CAN NCWORKS CAREER CENTERS HELP THE PROCESS?

With more than 80 NCWorks Career Centers across the state, job seekers can access tools necessary to be successful.

Services offered to job-seekers, at no charge:

- Career assessment and guidance
- Access to training and education programs
- Learn about job fairs and workshops
- Information on the job market
- Assistance with job searches
- Résumé and cover letter preparation
- Practice job interviews
- Free computer and Internet access

Veterans, young adults, migrant farm workers, and former offenders can access special programs through their local NCWorks Career Center. For more information and to set up an appointment, visit [ncworks.gov](https://www.ncworks.gov).



### LEARN HOW TO ACE THAT INTERVIEW!

If you are successful through these steps and are chosen, you will receive a job offer. The top negotiation point is salary and understanding what a fair wage is for you based on your skill level, experience and other areas is important but don't underestimate the value of a total compensation package which can include health insurance, retirement, and many more valuable items.



## Exploring the Job Market

Specific job requirements change from industry to industry, business to business, and hiring manager to hiring manager. Whether you're still planning your future career or getting ready to enter the job market, understanding what employers are looking for in a job candidate is always helpful. The more research you do to understand job and employer requirements and prepare yourself to meet those needs, the better positioned you will be to land your dream job.

**Read job postings.** Search online to find what kinds of jobs are out there. Places to start include: [NCWorks.gov](https://www.ncworks.gov), [Indeed.com](https://www.indeed.com), and [linkedin.com/jobs](https://www.linkedin.com/jobs).

**Research the occupation.** Make sure you understand the occupation and its potential. The Bureau of Labor Statistics' Occupational Outlook Handbook ([bls.gov/ooh](https://www.bls.gov/ooh)) and CareerOneStop ([careeronestop.org/ExploreCareers/explore-careers.aspx](https://www.careeronestop.org/ExploreCareers/explore-careers.aspx)) have thorough descriptions of hundreds of occupations with data on wages and job growth.

**Research the industry.** Whether you're preparing for an interview or trying to better understand a career, learning about the industry and occupations will help you gain understanding of the opportunities and challenges in that field. Is it growing and successful? What global or technological changes likely to affect future jobs in this industry?

**Find local employers.** Reviewing job postings will likely help you start to identify employers, but remember – not all companies will be hiring at that moment and not all will post jobs online! Find employers in your area with CareerOneStop's Employer Locator tool at [careeronestop.org/toolkit/jobs/find-businesses.aspx](https://www.careeronestop.org/toolkit/jobs/find-businesses.aspx). Limiting your search to industries (i.e. medical clinics) may be more helpful than just looking for occupations (i.e. nurses).

### WORKERS WITH DISABILITIES

Whether your disability is visible or not, a recent change or a long-term condition, your participation in the workforce is in demand.

Disability is not only diverse, it is part of the human experience and it affects all individuals at some point in their lives, either directly or through a family member or friend. If you have, or think you have, a disability, it will be important to learn more about the law and your rights.

Find resources and information to support your successful employment at [careeronestop.org/ResourcesFor/WorkersWithDisabilities/workers-with-disabilities.aspx](https://www.careeronestop.org/ResourcesFor/WorkersWithDisabilities/workers-with-disabilities.aspx).

**Research the company.** Before contacting a potential employer, learn what the company does. The more you know about their business, the more impressive employers will find you when you talk with them.

**Ask for an informational interview.** Talking directly with someone in the company is the best way to learn about what a business does and what the employer looks for in job candidates. If you're patient and polite, employers will often find 20-30 minutes to meet and talk. Make sure you:

- Come prepared with questions
- Don't ask for a job
- Are respectful and appreciative

For tips on networking and conducting an informational interview, go to [careeronestop.org/JobSearch/Network/form-a-network.aspx](https://www.careeronestop.org/JobSearch/Network/form-a-network.aspx).



### HOW DO I UNDERSTAND WHAT IS A FAIR SALARY?

While there are many factors that determine the salary an employer may pay an employee, job seekers should understand what a reasonable wage might be to be able to negotiate.

NCcareers.org provides a range of wages that varies from the 10<sup>th</sup> percentile (lower end wage), to the 50<sup>th</sup> percentile (middle wage) and ends with the 90<sup>th</sup> percentile (higher end wage). Typically, a worker starting out with minimal skills and experience should expect a salary closer to the lower end wage. As a worker gains experience, they could earn something around the middle wage. As the worker becomes one of the top workers in the field with a significant amount of experience, they could earn something closer to the higher end wage.



DREAM IT. PLAN IT. BE IT.



NCcareers.org



Find jobs, job training, and employers at [nworks.gov](http://nworks.gov)





## Selected Careers Data Sources & Notes

### Sources:

- O\*NET OnLine ([onlinetoolsonline.org](https://onlinetoolsonline.org)): Information about occupations, career pathways, job descriptions, and interests
- 2020-2030 Occupational Projections ([https://tools.nccareers.org/employmentprojections/industry\\_employment\\_projections.html](https://tools.nccareers.org/employmentprojections/industry_employment_projections.html)): Data for the annual openings, and growth prepared by the Labor & Economic Analysis Division, North Carolina Department of Commerce.

### Notes:

- Table lists a sampling of representative occupations for each cluster. For a full list, go to [https://nccareers.org/occupation-profile?field\\_area\\_target\\_id\\_1-1284](https://nccareers.org/occupation-profile?field_area_target_id_1-1284)
- 10-Year Openings includes the total number of jobs available due to growth and separations over 10 years.
- Growth Rate is the year-over-year growth rate over multiple years. It is not obtained by averaging the year-to-year percentage changes.
- The Occupational Employment and Wage Statistics (OEWS) program of the Bureau of Labor Statistics produces estimates of wages paid to employees in specific occupations. The entry wage represents the 10th percentile wage. A median wage estimate is the midpoint between the highest paid half and the lowest paid half of workers in that occupation (2022 release with a reference period of May 2021).
- Minimum Education Requirements for occupations are determined by the Bureau of Labor Statistics (<https://www.bls.gov/emp/tables/education-and-training-by-occupation.htm>). Actual market conditions may require additional education and/or training.

DREAM IT. PLAN IT. BE IT.  
**NCcareers.org**

**NC COMMUNITY  
COLLEGES**  
CREATING SUCCESS



**NC DEPARTMENT  
of COMMERCE**  
LABOR & ECONOMIC  
ANALYSIS



North Carolina Department of  
**PUBLIC INSTRUCTION**

