

North Dakota's Career Clusters

The Career Clusters organize all occupations around broad categories.
Occupations within each cluster require similar skills and knowledge.

Agriculture, Food & Natural Resources	The production, processing, marketing, distribution, financing and development of agricultural commodities and resources.
Architecture & Construction	Designing, planning, managing, building and maintaining the built environment.
Arts, A/V Technology & Communications	Designing, producing, exhibiting, performing, writing and publishing multimedia content.
Business Management & Administration	Planning, organizing, directing and evaluating business functions essential to efficient and productive business operations.
Education & Training	Planning, managing and providing education and training services and related learning support services.
Energy	Energy sources including petroleum, natural gas, coal, wind energy and biofuels that affect our daily lives.
Finance	Planning, services for financial and investment planning, banking, insurance and business financial management.
Government & Public Administration	Planning and performing government functions at the local, state and federal levels.
Health Science	Planning, managing and providing therapeutic and diagnostic services.
Hospitality & Tourism	The management, marketing and operations of restaurants, lodging and travel related services.
Human Services	Preparing individuals for employment that relates to families and human needs.
Information Technology	The design, development, support and management of hardware, software, multimedia and systems integration services.
Law, Public Safety, Corrections & Security	Planning, providing and managing legal, public safety, protective services and homeland security.
Manufacturing	Processing materials into intermediate or final products and related professional and technical support activities.
Marketing	Planning, managing and performing marketing activities to reach organizational objectives.
Science, Technology, Engineering & Mathematics	Providing scientific research and technical services, including laboratory testing services, research and development.
Transportation, Distribution & Logistics	The movement of people, materials and goods by road, pipeline, air, rail and water.



Find more occupations at www.RURReady.ND.gov



North Dakota Department of Career and Technical Education
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CareerClusters®
PATHWAYS TO COLLEGE & CAREER READINESS

Agriculture, Food & Natural Resources

Agribusiness Systems

The coordination of activities that contribute to the marketing, financing and development of agriculture. It is a high-tech industry using innovation to increase efficiency and profitability.

- Ag Commodity Sales Agents
- Farm Product Buyers and Purchasing Agents
- Financial Managers, Branch or Department
- Agricultural Sales Representatives

Animal Systems

People in this pathway develop more efficient ways of producing and processing meat, poultry, eggs and dairy products. They study genetics, nutrition, reproduction, and the development of farm animals.

- Animal Scientists
- Supervisors of Animal Care Workers
- Veterinarians
- Zoologists and Wildlife Biologists

Environmental Service Systems

Water and air pollution control, recycling, waste disposal and public health issues are concerns. Workers analyze scientific data, research environmental projects and develop quality control procedures.

- Environmental Compliance Inspectors
- Environmental Engineering Technicians
- Pest Control Workers
- Water and Wastewater Treatment Plant and Systems Operators

Natural Resources Systems

People working in this pathway develop, maintain, manage and protect the natural environment. This includes forest and rangelands, minerals, water and wildlife habitats.

- Fish and Game Wardens
- Forest and Conservation Workers
- Geological Data Technicians
- Soil and Water Conservationists

Food Products and Processing Systems

The discovery of new food sources and the processing, packaging and food storage based on industry and government regulations.

- Agricultural and Food Science Technicians
- Agricultural Scientists
- Food Scientists and Technologists
- Agricultural Products Graders and Sorters

Plant Systems

Helping producers of crops feed a growing population while conserving natural resources and maintaining the environment.

- Crop, Nursery and Greenhouse Farmworkers
- Foresters
- Lawn Service Managers
- Soil and Plant Scientists

Power, Structural and Technical Systems

The focus is on the knowledge of engineering, hydraulics, pneumatics, electronics, power, structures and controls. Workers design agricultural structures as well as machinery and equipment.

- Agricultural Engineers
- Agricultural Equipment Operators
- Farm Equipment Mechanics and Service Technicians
- Parts Managers



- What education do I need for this occupation?
- Where can I get the necessary education?
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Architecture & Construction

Construction

Workers build and remodel houses, apartments, industrial buildings, warehouses, office buildings, churches, schools and recreational facilities.

- Carpenters
- Cement Masons and Concrete Finishers
- Construction and Building Inspectors
- Construction Managers
- Cost Estimators
- Crane and Tower Operators
- Glaziers
- Plumbers, Pipefitters and Steamfitters
- Sheet Metal Workers
- Structural Iron and Steel Workers

Design/Pre-Construction

Employees in design/pre-construction create our future! They turn a concept into a set of plans. Their plans guide other construction professionals as they continue the building process.

- Architects
- Architectural and Civil Drafters
- Cartographers and Photogrammetrists
- Civil Engineers
- Commercial and Industrial Designers
- Interior Designers
- Materials Engineers
- Mechanical Drafters
- Surveying and Mapping Technicians
- Surveyors



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Maintenance/Operations

Employees in maintenance/operations determine the optimal placement of machines in a plant, install machinery and maintain the smooth operation of refineries, power plants, chemical plants and mills.

- Control and Valve Installers and Repairers
- Electric Meter Installers and Repairers
- General Maintenance and Repair Workers
- Geothermal Technicians
- Heating, Air Conditioning & Refrigeration Mechanics
- Home Appliance Repairers
- Installation, Maintenance and Repair Workers
- Landscaping and Groundskeeping Workers
- Stationary Engineers
- Boiler Operators
- Valve and Regulator Repairers





Arts, A/V Technology & Communications

Audio and Video Technology and Film

Individuals present sound, video and data in corporate boardrooms, hotels, convention centers, theme parks, stadiums and museums.

- Audio and Video Equipment Technicians
- Film and Video Editors
- Media and Communication Equipment Workers
- Multimedia Artists and Animators
- Photographers

Journalism and Broadcasting

News reporters gather information and write stories that inform us about events.

Broadcast and sound technicians operate the equipment used to record and transmit radio and television programs.

- Broadcast Technicians
- Camera Operators
- Producers and Directors
- Radio and Television Announcers
- Reporters and Correspondents

Performing Arts

Theatrical production companies coordinate all aspects a play or theater event. Lighting and stage crews handle the technical aspects of productions.

- Actors
- Art Directors
- Makeup Artists
- Music Composers and Arrangers
- Set and Exhibit Designers

Printing Technology

Workers transform text and pictures into finished pages and making printing plates of the pages. The printing industry is rapidly moving toward “digital imaging,” by which material received digitally is converted directly into printing plates.

- Computer Operators
- Design Printing Machine Setters
- Precision Printing Workers
- Prepress Technicians and Workers
- Printing Press Operators

Telecommunications

Telecommunications specialists focus on the interaction between computer and communications equipment that can communicate a variety of information, including data, graphics and video.

- Communications Equipment Operators
- Computer Network Support Specialists
- Computer and Information Systems Administrators
- Electrical and Electronic Equipment Assemblers
- Telecommunications Engineering Specialists

Visual Arts

Visual artists create art to communicate ideas, thoughts or feelings. They use a variety of methods—painting, sculpting, illustrating—and an assortment of materials, including oils, watercolors, acrylics, pastels, pencils, pen and ink, photography, plaster, clay and computers.

- Audio-Visual and Multimedia Collections Specialists
- Commercial and Industrial Designers
- Fine Artists, including Painters, Sculptors and Illustrators
- Graphic Designers
- Museum Technicians and Conservators

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Business Management & Administration

Administrative Support

Business operations are facilitated through a variety of administrative and clerical duties including information and communication management, data processing and project tracking.

- Administrative Assistants
- Computer Operators
- Court Reporters
- Office and Administrative Support Workers
- Receptionists and Information Clerks

Business Information Management

Business Information Management is an umbrella term covering careers that provide a bridge between business processes/initiatives and Information Technology.

- Business Intelligence Analysts
- Computer Systems Managers
- Database Administrators
- Document Management Specialists
- Information Technology Project Managers

General Management

The planning, organizing, directing and evaluation of all or part of a business organization through the allocation and use of financial, human and material resources.

- Advertising and Promotions Managers
- General and Operations Managers
- Public Relations Managers
- Purchasing Managers
- Storage and Distribution Managers

Human Resources Management

The staffing activities that involve planning, recruitment, selection, orientation, training, performance appraisal, compensation and safety of employees.

- Compensation and Benefits Manager
- Compliance Managers
- Human Resources Managers
- Labor Relations Specialists
- Training and Development Managers

Operations Management

The planning, organizing, coordinating and controlling of the resources needed to produce/provide a business's goods and/or services.

- Business Continuity Planners
- Business Intelligence Analysts
- Business Operations Specialists
- General and Operations Managers
- Operations Research Analysts



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Education & Training



Administration and Administrative Support

Smooth operation of any education or training institution requires competent administration to provide direction, leadership and management of educational activities.

- Distance Learning Coordinators
- Elementary and Secondary School Administrators
- Human Resource Managers
- Instructional Coordinators
- Instructional Designers
- Postsecondary Education Administrators
- Preschool and Childcare Center Administrators
- Religious Activities and Education Directors

Professional Support Services

A variety of highly specialized occupations that are critical to our education and training systems is represented here. Counselors, psychologists, social workers and speech-language pathologists assist people with personal and family needs, mental health assistance, educational goals and career decision making.

- Audiologists
- Child, Family and School Social Workers
- Guidance and School Counselors
- Librarians
- School Psychologists
- Speech-Language Pathologists
- Teacher Assistants
- Tutors



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Teaching and Training

Teachers and trainers must be knowledgeable in their subject area and have the ability to communicate, motivate learners and understand educational needs. Teachers must be able to recognize and respond to individual differences and employ different teaching/training methods.

- Adult Basic and Secondary Education and Literacy Teachers and Instructors
- Career and Technical Education Teachers
- Coaches and Scouts
- Elementary School Teachers
- Fitness Trainers and Aerobics Instructors
- Instructional Aides
- Secondary School Teachers
- Special Education Teachers



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Biofuel production has grown in North Dakota with corn-based ethanol and canola-based biodiesel.

Geothermal Energy is an area of great potential in North Dakota. As developers and drillers figure out ways to recover more oil from our reserves, researchers are working to find ways to create enhanced geothermal systems to generate electric power.

Hydroelectric power (hydropower) • Garrison Dam and Power Plant utilizes five turbines and generates between 1.8 and 2.6 billion kilowatt-hours of electricity each year.

Lignite Coal • North Dakota has the second-largest known reserves of lignite in the world and is also home to the only commercial-scale coal gasification plant in the United States.

Natural Gas • Natural gas in North Dakota is co-produced with oil wells, which means that when an oil well is drilled, natural gas rises to the surface along with the oil. Natural gas is used as a resource for producing electricity.

Solar Energy technology is based on two main types – photovoltaics (PV) and concentrated solar power (CSP). Verendrye Electric Cooperative in Velva, N.D., has the largest solar program in the state with more than 240 solar-powered water pumps.

Recovered Energy Generation, also known as heat-recovery generation or waste heat energy, is a process of capturing hot exhaust to drive a turbine and create electricity. There are three recovered energy generation sites in North Dakota using exhaust from the Northern Border Pipeline.

Petroleum • North Dakota is a significant oil producing state. North Dakota is also a point of entry for Canadian crude oil traveling by pipeline to markets in the Midwest.

Wind Energy • North Dakota has more than 1,050 wind turbines. The state may soon have nearly 2,770 megawatts of wind energy installed.

- Biofuels Processing Technicians
- Drilling and Boring Machine Tool Setters
- Environmental Engineers
- Environmental Restoration Planners
- Environmental Science and Protection Technicians
- Fuel Cell Technicians
- Geological and Petroleum Technicians
- Geothermal Technicians
- Hydroelectric Plant Technician
- Hydrologists
- Industrial Safety and Health Engineers
- Mining and Geological Engineers
- Petroleum Pump and Refinery Operators
- Power Distributors and Dispatchers
- Recycling and Reclamation Workers
- Water Resource Specialists
- Wind Turbine Service Technicians



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Accounting

Accountants summarize, analyze and communicate a business's financial information for use in management decision-making.

- Accountants and Auditors
- Billing, Cost and Rate Clerks
- Bookkeeping, Accounting and Auditing Clerks
- Payroll and Timekeeping Clerks
- Treasurers, Controllers and Chief Financial Officers

Banking Services

Banks accept deposits, lend funds and extend credit to customers. Services are delivered through commercial banks, savings and loans associations and credit unions.

- Credit Analysts
- Credit Authorizers, Checkers and Clerks
- Loan Officer
- Tellers
- Title Examiner, Abstractor and Searchers

Business Finance

Managing policy and strategy for the implementation of capital structure, budgeting, acquisition and investment, financial modeling and planning, funding, dividends and taxation.

- Business Operations Specialists
- Financial Analysts
- Sales Agents, Financial Services
- Tax Examiners and Collectors
- Treasurers and Controllers

Insurance

The insurance industry, which exists to protect individuals and businesses from financial losses, delivers services that transfer risk from an individual or business to an insurance company.

- Actuaries
- Claims Adjusters, Examiners and Investigators
- Insurance Appraisers
- Insurance Sales Agents
- Insurance Underwriters

Securities and Investments

Brokerage firms, investment banks and stock exchanges support the flow of funds from investors to companies and institutions.

- Brokerage Clerks
- Personal Financial Advisor
- Sales Agents, Securities and Commodities
- Securities and Commodities Traders
- Tax Preparers

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Government & Public Administration

Foreign Service

Serve in embassies and consulates located around the world and in Washington, D.C. Job responsibilities include analyzing political and economic events and helping American citizens abroad.

- Ambassadors
- Diplomatic Couriers
- Foreign Service Officers
- Interpreters and Translators

Governance

This pathway includes the President and members of Congress, governors and state legislators and local elected officials.

- Congressional Aides
- Governor/Lieutenant Governor
- Legislators
- Policy Advisors

National Security

Maintaining strong national security encompasses diverse activities such as commanding a tank, programming computers, operating a nuclear reactor, or repairing and maintaining a helicopter.

- Air Crew Members
- Command and Control Center Officers
- Radar and Sonar Technicians
- Special Forces Officers

Planning

The development of long- and short-term plans to provide for growth and revitalization of urban, suburban and rural communities.

- City Planning Aides
- Economists
- Interviewers, Except Eligibility and Loan
- Urban and Regional Planners



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Public Management and Administration

Government agencies and corporations have rigorous standards for the stewardship of public resources. Public management careers require technical skills and specific knowledge of regulations.

- Court Clerks
- Eligibility Interviewers, Government Programs
- Postal Service Mail Sorters and Processors
- Postmasters and Mail Superintendents

Regulation

Technical knowledge about an industry and the environment is needed for this pathway. An understanding of laws and rules permit regulators to protect our health, safety and environment.

- Compliance Managers
- Government Property Inspectors
- Licensing Examiners
- Regulatory Affairs Specialists

Revenue and Taxation

Those employed in this pathway ensure that governments obtain revenues from businesses and citizens by collecting tax dollars, reviewing tax returns, conducting audits and collecting overdue tax dollars.

- Appraisers and Assessors of Real Estate
- Financial Examiners
- Tax Examiners, Collectors and Revenue Agents
- Tax Preparers



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Health Science

Biotechnology Research and Development

Scientists may study diseases to discover new treatments or invent medical devices through bioscience research and development.

- Bioinformatics Scientists
- Biologists
- Biomedical Engineers
- Medical Equipment Preparers
- Medical Scientists, except Epidemiologists

Diagnostic Services

Tests and evaluations are used to aid in the detection, diagnosis and treatment of diseases, injuries or other physical conditions.

- Diagnostic Medical Sonographers
- Healthcare Support Workers
- Medical and Clinical Laboratory Technologists
- Nuclear Medicine Technologists
- Radiologic Technicians

Health Informatics

This includes health care administrators who manage health care agencies as well as those individuals who are responsible for managing all of the patient data and information related to health care procedures.

- Computer and Information Systems Managers
- Epidemiologists
- Health Educators
- Medical Records and Health Information Technicians



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Support Services

Careers in this pathway provide a therapeutic environment for the delivery of health care.

- Biomedical Engineers
- Dietetic Technicians
- Environmental Scientists and Specialists, including Health
- Occupational Health and Safety Specialists
- Substance Abuse and Behavioral Disorder Counselors

Therapeutic Services

Health professionals in this pathway work directly with patients; they may provide care, treatment, counseling and health education information.

- Dentists
- Occupational Therapists
- Pharmacists
- Speech-Language Pathologists
- Surgical Technologists





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Hospitality & Tourism

RECEPTION



Lodging

Employees perform tasks related to the operation of lodging facilities and the care of guests who use these facilities.

- Concierges
- Housekeeping Supervisors
- Hotel, Motel and Resort Desk Clerks
- Janitorial Supervisors
- Lodging Managers
- Parking Lot Attendants
- Sales Managers

Recreation, Amusements and Attractions

The work is exciting and diverse, yet can be demanding. Good customer service skills are essential for success in this pathway.

- Amusement and Recreation Attendants
- Animal Trainers
 - Athletes and Sports Competitors
 - Exhibit Designers
 - Museum Technicians and Conservators
- Recreation Workers
- Umpires, Referees and other Sports Officials

Restaurant and Food/Beverage Services

A variety of tasks are performed to maintain operations and promote guest services in eating and drinking establishments.

- Bakers
- Baristas
- Food Concession Counter Attendants
- Food Preparation Workers
- Food Service Managers
- Restaurant Hosts/Hostesses
- Waiters and Waitresses

Travel and Tourism

Employees may be involved in developing a heritage area, planning trips, or managing a customer's travel plans.

- Interpreters and Translators
- Meeting and Convention Planners
- Receptionists and Information Clerks
- Reservation and Transportation Ticket Agents
- Travel Agents
- Travel Guides
- Travel Service Consultants



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Human Services

Consumer Services

People with careers in consumer services assist individuals with decisions and problems relating to finance, real estate, insurance and consumer goods.

- Customer Service Representatives
- Farm and Home Management Advisors
- Financial Assistance Advisors
- Insurance Underwriters
- Loan Counselors
- Property and Community Association Managers

Counseling and Mental Health Services

People with personal, family, educational, mental health and career decisions are given assistance through counseling and mental health service providers. Care may be provided in hospitals, clinics, schools or private settings.

- Clergy
- Counseling Psychologists
- Mental Health and Substance Abuse Social Workers
- Mental Health Counselors
- Rehabilitation Counselors
- Social and Human Service Assistants

Early Childhood Development and Services

Early childhood development workers provide services in childcare centers, nursery schools, preschools, public schools, private households and before- and after-school programs.

- Childcare Center/Program Education Administrators
- Childcare Workers
- Child Welfare Directors
- Nannies
- Preschool Teachers
- Teacher Assistants

Family and Community Services

Employees help individuals cope with circumstances of daily living; counsel troubled individuals; train or retrain the unemployed, care for the elderly and the physically and mentally disabled.

- City and Regional Planning Aides
- Community Service Managers
- Dietitians and Nutritionists
- Eligibility Interviewers, Government Programs
- Emergency Management Directors
- Social and Community Service Managers

Personal Care Services

Individuals are given assistance with their personal appearance, including styling hair; giving manicures and pedicures; facial treatments; providing makeup analysis; and providing personal fitness training.

- Barbers
- Fitness Trainers and Aerobics Instructors
- Funeral Attendants
- Hairdressers, Hairstylists and Cosmetologists
- Manicurists and Pedicurists
- Personal Care Aides

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Information Technology

Information Support and Services

The implementation of computer systems and software, provision of technical assistance, creation of technical documentation and management of information systems is critical to the success of most 21st century organizations.

- Business Intelligence Analysts
- Computer Support Specialists
- Computer Systems Analysts
- Database Administrators
- Document Management Specialists
- Information Security Analysts
- Information Technology Project Managers

Web and Digital Communications

Organizations use digital media for creating, designing and producing interactive multimedia products and services. This includes development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing.

- Computer Operators
- Graphic Designers
- Multimedia Artists and Animators
- Online Merchants
- Search Marketing Strategists
- Web Administrators
- Web Developers

Network Systems

Network analysis, planning and implementation, design, installation, maintenance and management of network systems are included in this pathway. Individuals with expertise in network systems are in high demand for a variety of positions.

- Computer and Information Systems Managers
- Computer Network Architects
- Computer Network Support Specialists
- Computer Security Specialists
- Network and Computer Systems Administrators
- Network Systems and Data Communications Analysts
- Software Developers, Systems Software

Programming and Software Development

Knowledge of computer operating systems, programming languages and software development is required to design and develop computer systems and software. People with expertise in programming and software development work to develop tomorrow's products for businesses and consumers.

- Computer and Information Systems Managers
- Computer Programmers
- Computer Systems Analysts
- Software Developers, Applications
- Software Developers, Systems Software
- Software Quality Assurance Engineers and Testers
- Video Game Designers

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Law, Public Safety, Corrections & Security

Correction Services

Overseeing individuals who have been arrested, convicted of a crime and sentenced to serve time in a jail, reformatory, or penitentiary. While the primary mission of corrections is protection of the public, many are involved with the treatment, education and reintegration of offenders.

- Correctional Officers and Jailers
- First-Line Supervisors/Managers of Correctional Officers
- Judges and Magistrates
- Probation Officers and Correctional Treatment Specialists
- Social Workers

Emergency and Fire Management Services

Every year, fires and other emergencies take thousands of lives and destroy property worth billions of dollars. Firefighters and emergency services workers help protect the public against these dangers.

- Emergency Management Specialists
- Emergency Medical Technicians and Paramedics
- Forest Fire Fighting and Prevention Supervisors
- Fire Inspectors and Investigators
- Police, Fire and Ambulance Dispatchers



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Law Enforcement Services

People depend on police officers and detectives to protect their lives and property. Law enforcement officers have duties that range from controlling traffic to preventing and investigating crimes. They enforce laws, investigate accidents, present evidence in court and serve legal documents for the court system.

- Criminal Investigators and Special Agents
- Forensic Science Technicians
- Immigration and Customs Inspectors
- Police and Sheriff's Patrol Officers
- Transit and Railroad Police

Legal Services

The legal system affects nearly every aspect of our society, from buying a home to crossing the street. Workers in the Legal Services pathway form the backbone of this vital system, linking it to society in a variety of ways.

- Administrative Law Judges, Adjudicators and Hearing Officers
- Arbitrators, Mediators and Conciliators
- Judicial Law Clerks
- Lawyers
- Paralegals and Legal Assistants

Security and Protective Services

Security personnel often work in public buildings such as museums and large event facilities. People and packages entering and leaving the building are inspected for safety purposes. Security officers protect information and check the credentials of people and vehicles entering and leaving the premises.

- Command and Control Center Specialists
- Crossing Guards
- Loss Prevention Managers
- Private Detectives and Investigators
- Security Guards



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Manufacturing

Health, Safety and Environmental Assurance

Ensuring that equipment is being used safely in the workplace; planning for safety in new production processes; conducting health, safety and/or environmental incident and hazard investigations.

- Compliance Managers
- Environmental Economists
- Environmental Science and Protection Technicians, including Health
- Occupation Health and Safety Specialists
- Product Safety Engineers

Logistics and Inventory Control

Working with raw materials and finished parts, move raw materials to the production line, unload trucks, wrap pallets of finished products for shipment and communicate with traffic managers.

- Dispatchers, except Police, Fire and Ambulance
- Laborers and Freight, Stock and Materials Movers
- Logistics Managers
- Shipping, Receiving and Traffic Clerks
- Storage and Distribution Managers

Production

People with careers in production work with machines, making or assembling electronic parts, constructing or assembling modular housing, performing welding jobs, or printing various materials.

- Electrical and Electronic Inspectors and Testers
- Industrial Engineering Technicians
 - Metal Fabricators, Structural Metal Products
 - Power Distributors and Dispatchers
 - Welding Machine Operators and Tenders



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Manufacturing Production Process Development

Employees are responsible for product design and working with customers to ensure the product meets or exceeds customer expectations. They also monitor the manufacturing process and the materials used to manufacture the product.

- Biofuels Production Managers
- Commercial and Industrial Designers
- Electromechanical Equipment Assemblers
- Manufacturing Production Technicians
- Power Plant Operators

Quality Assurance

This type of work ensures that standards and procedures are adhered to and products or services meet performance requirements as well as measuring or testing products and parts to ensure they meet customer specifications.

- Calibrators, Electric Timing Devices
- Inspectors, Testers and Sorters
- Precision Instrument and Equipment Repairers
- Quality Control Analysts
- Validation Engineers

Maintenance, Installation and Repair

Employees troubleshoot and repair electrical, electronic and mechanical systems. This includes computer-based inventory control systems, and retrieving information histories on each machine from computer records.

- Calibration and Instrumentation Technicians
- Electric Motor and Switch Assemblers
- Industrial Machinery Mechanics
- Medical Equipment Repairers
- Outdoor Power Equipment and Small Engine Mechanics



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Marketing Communications

Marketing communications employees plan, coordinate and implement marketing strategies, advertising promotion and public relations activities

- Advertising and Promotions Managers
- Advertising Sales Agents
- Communication Directors
- Demonstrators and Product Promoters
- Public Relations Specialists

Marketing Management

Formulating policies and directing the operations of businesses and corporations, nonprofit institutions and other organizations.

- Customer Service Representatives
- Marketing Development Managers
- Marketing Managers
- Sales Managers
- Search Marketing Strategists

Marketing Research

Employees in marketing research are concerned with understanding people and organizations. They collect and analyze many different types of information to design new products, to predict future sales and to position their own company's strategies against those of its competitors.

- Database Administrators
- Knowledge Management Specialists
- Marketing Forecasters
- Market Research Analysts
- Research Specialists

Merchandising

Employees in buying and merchandising positions get the product into the hands of the customer. This process includes forecasting, planning, buying, displaying, selling and providing customer service.

- Cashiers
- Customer Service Representatives
- Merchandise Displayers and Window Trimmers
- Procurement Clerks
- Stock Clerks, Sales Floor

Professional Sales

These workers are involved in the transfer of goods and services in the economy, both to businesses and to individual consumers.

- Demonstrators and Product Promoters
- Real Estate Brokers
- Retail Salespersons
- Telemarketers
- Wholesale and Retail Buyers, Except Farm Products



- What education do I need for this occupation?
- Where can I get the necessary education?
- What are the future employment opportunities?
- What wages are typical?

Visit www.RUReady.ND.gov to learn more about these and other occupations.



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PATHWAYS TO COLLEGE & CAREER READINESS

Science, Technology, Engineering & Mathematics

Engineering and Technology

For a future in this pathway, students should study and apply principles from advanced mathematics, life sciences, physical science, earth and space science and technology.

- Aerospace Engineers
- Agricultural Engineers
- Architectural Drafters
- Chemical Engineers
- Civil Drafters
- Computer Hardware Engineers
- Electrical Drafters
- Electrical Engineers
- Electronic Drafters
- Materials Engineers
- Mechanical Engineers
- Mining and Geological Engineers, Including Mining Safety Engineers
- Petroleum Engineers
- Product Safety Engineers
- Surveying and Mapping Technicians

Science and Mathematics

Those who choose careers in this pathway apply essential mathematics and science content and skills in a real-world context. Science and mathematics occupations include those in physical, environmental and human endeavors.

- Agricultural Technicians
- Astronomers
- Atmospheric and Space Scientists
- Biochemists
- Chemists
- Conservation Scientists
- Food Science Technicians
- Geographers
- Geologists
- Hydrologists
- Mathematicians
- Microbiologists
- Nuclear Monitoring Technicians
- Physicists
- Statisticians



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PATHWAYS TO COLLEGE & CAREER READINESS

Transportation, Distribution & Logistics

Logistics Planning and Management Services

These people are responsible for ensuring that cargo arrives at the right location, on time and in the safest, most economical manner.

- Logistics Managers
- Mail Clerks and Mail Machine Operators
- Production, Planning and Expediting Clerks
- Transportation, Storage and Distribution Managers

Sales and Service

People employed in this pathway market and sell transportation services to new customers as well as the management of existing customer relationships and customer service.

- Billing and Posting Clerks and Machine Operators
- Cargo and Freight Agents
- Reservation and Transportation Ticket Agents
- Sales Representative, Services, All Other

Transportation Operations

These are the people that drive or pilot the vehicles that transport people and freight. Equally important are the support people who ensure that any cargo transport is safe, secure and on time.

- Airline Pilots, Copilots and Flight Engineers
- Railroad Brake, Signal and Switch Operators
- Ship and Boat Captains
- Subway and Streetcar Operators
- Tractor-Trailer Truck Drivers

Health, Safety and Environmental Management

Assessment and management of risks associated with health, safety and environmental issues are included in this pathway.

- Environmental Science and Protection Technicians
- Health and Safety Engineers
- Industrial Safety and Health Engineers
- Occupational Health and Safety Specialists

Transportation Systems/ Infrastructure Planning, Management and Regulation

Careers in this pathway deal with all aspects of the design and operation of our public transportation systems – road, air, sea and rail. These functions are the responsibility of people employed by federal, state and local transportation agencies.

- Air Traffic Controllers
- Civil Engineers
- Public Transportation Inspectors
- Urban and Regional Planners

Warehousing and Distribution Center Operations

The operation of transportation and distribution facilities including ports, terminals, and warehouses is the focus of this pathway. All cargo needs to be tracked, sorted, labeled and loaded accurately and safely.

- Laborers and Freight, Stock and Material Movers, Hand
- Packers and Packagers, Hand
- Shipping, Receiving and Traffic Clerks
- Storage and Distribution Managers
- Tank Car, Truck and Ship Loaders

Facility and Mobile Equipment Maintenance

The people in this pathway keep the equipment and machinery running while looking for more efficient, safe and cost-effective ways to do so.

- Aircraft Mechanics and Service Technicians
- Automotive Specialty Technicians
- Diesel Engine Specialists
- Electronic Equipment Installers and Repairers
- Rail-Track Laying and Maintenance Equipment Operators



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