North Dakota Career Resource Network

# CAREER OUTLOOK

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EDUCATION & CAREER PLANNING

North Dakota cte Career and Technical Education

## Charting your Course with Career Pathways

## ACKNOWLEDGEMENTS

The Career Outlook is a publication of the North Dakota Department of Career and Technical Education's Career Resource Network (CRN).

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***Thank you to all who have contributed to the production of this year's Career Outlook.***


***Cover photo courtesy of Threefold Productions.***

## FROM THE DIRECTOR

Dear Students:

***Are you ready for the next step in your future?***

Whether you are in the early stages of career planning, preparing to transition to college, or entering the workforce, consider the future steps you will need to take.

Career and Technical Education (CTE) courses provide the opportunity to explore a wide range of careers while learning the academic knowledge and technical skills necessary for future success. Membership in a Career and Technical Student Organization (CTSO) will further develop your skills in leadership, whether as an officer or competing in state and national events.

The Career Cluster Survey in RUReadyND.com identifies which career cluster is of the greatest interest to you. Each of the career clusters and related pathways are based on essential knowledge, skills and interests. Use this information to develop your plan of study for high school and beyond.

Making decisions for the future may seem overwhelming. Thoughtful, deliberate planning will help you choose a career that is personally satisfying and fulfills a critical need in your community. The workforce of tomorrow will need the knowledge, technical skill, and attitude necessary to be globally competitive. This publication will guide you through the process of planning and preparing for a lifetime of success in North Dakota.

I wish you the best as you prepare for the future.

Sincerely,

Wayne Kutzer

Wayne Kutzer, Director
ND Department of Career and Technical Education

### *What's this?*

It's a QR Code. You'll find these codes in several places throughout the Career Outlook. When you scan a QR Code using a mobile phone camera or webcam, the QR Code reader application takes you to a website or other web content.

Your phone or computer needs to have QR Code reader software. There are many websites where you can download free QR code reader applications. Do a web search using the keywords "QR reader" to find such applications.

### Career Outlook User's Guide

Make the most of using the Career Outlook with your students or clients! Visit **www.nd.gov/cte/crn/coug** to find the Career Outlook User's Guide which contains a teacher's guide and lesson plans to enhance the use of the publication.

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RU Ready ND.com

EDUCATION & CAREER PLANNING

# CHART YOUR PATH TO THE FUTURE WITH RUReadyND.com!

## RUReadyND.com will help you:

- Discover your career interests
- Create learning plans for high school
- Prepare for the ACT test with testGEAR™
- Search for college degree programs
- Learn about financial aid and scholarship options
- Develop a resume and practice for job interviews

North Dakota cte Career and Technical Education

BND Bank of North Dakota COLLEGE PLANNING CENTER

## *Get started today at RUReadyND.com*

For more information see your school counselor or visit *www.nd.gov/cte/crn*

# North Dakota Academic and Career & Technical Education Scholarship Programs

Qualified students may be eligible for up to $6,000 for undergraduate study after high school graduation if they satisfy the criteria for one of these scholarships.

These scholarships are to be used at North Dakota accredited public or private institutions of higher education. For purposes of eligibility, "full-time" means enrollment in at least 12 credits during the student's first two semesters of college/university attendance and enrollment in at least 15 credits during each semester thereafter. The scholarship is renewable provided the student maintains a 2.75 GPA while attending college.

North Dakota seniors must apply by **June 3, 2016**, to establish eligibility. Students who are awarded a scholarship may defer acceptance of the scholarship.

Students will need to plan their high school coursework carefully to meet all eligibility requirements within the four years of high school. For a complete listing of eligibility requirements for both scholarship programs, or for an application, visit ***www.dpi.state.nd.us/resource/act/act.shtm*** or call 701-328-2244.

## North Dakota Academic and CTE Scholarship

### Academic Scholarship Requirements

- 1 unit of mathematics for which Algebra II is a prerequisite.
- 2 units of the same foreign language; the same Native American language; American Sign Language; or career and technical education from a coordinated plan of study.
- 1 unit selected from foreign languages; Native American languages; American Sign Language; fine arts; or career and technical education.
- 1 unit of an advanced placement course and examination; 1 unit of an early entrance program course; or ½ unit of a dual credit course.
- Receive a composite score of at least 24 on the ACT test.

### Common Requirements for Both Scholarships

- North Dakota residency.
- Graduate from a high school in North Dakota, from a high school in a bordering state); from a nonpublic high school in a neighboring state while the students resides with a custodial parent in ND); or complete a program of home education supervised in accordance with Chapter 15.1-23.
- Complete the diploma requirements.
- Obtain a grade of at least "C" in each unit OR ½ unit required under the diploma requirements and the specific units required by each respective scholarship.
- Obtain a cumulative grade point of at least 3 on a 4.0 scale based on the 22 units required by ND for high school graduation, including specific scholarship requirements. The GPA must be rounded to the nearest hundredth for eligibility purposes.
- Complete 1 unit of Algebra II.

*Worksheet can be found at http://www.dpi.state.nd.us/resource/act/require.pdf*

### Career and Technical Education Scholarship Requirements

- 4 units of career and technical education in which 2 units must be from a coordinated plan of study recommended by ND Career & Technical Education.
- 1 unit selected from foreign languages; Native American languages; American Sign Language; fine arts; or career and technical education.
- Receive a composite score of at least 24 on an ACT; or a score of at least 5 on each of the three required WorkKeys assessments (Applied Mathematics, Locating Information, Reading for Information).

# Dual Credit Courses

**North Dakota University System colleges and universities, in partnership with area high schools, offer several CTE and general education courses for dual credit. Many schools award dual credit for the college class in lieu of their high school class equivalent.**

## Advantages of Dual Credit Courses:

- ✓ You can complete a college class or two by successfully completing dual credit courses in high school.
- ✓ Students and parents can save by not having to pay full tuition for dual credit courses.
- ✓ Students can ease into college classes in a comfortable, familiar environment with smaller class sizes.
- ✓ The letter grade received in the course is the same and is posted on both high school and college transcripts.
- ✓ Successful completion of a dual credit class may fulfill one of the requirements of the North Dakota Academic Scholarship.

# Career Clusters Interest Survey

**Directions: ☑ Check the items in each box that best describe you. You may make as many or as few checks as you choose. Add up the number of checkmarks in each row and place the total in the box at the end of the row. Look to see which three have the highest numbers. Find the corresponding Career Clusters at the end of the survey to see which clusters you may want to explore.**

| | Activities that describe what I like to do: | Personal qualities that describe me: | School subjects that I like: | Total number ☑ checked |
|---|---|---|---|---|
| 1 | ❑ Learn how things grow and stay alive.<br>❑ Make the best use of the earth's natural resources.<br>❑ Hunt and/or fish.<br>❑ Protect the environment.<br>❑ Be outdoors in all kinds of weather.<br>❑ Plan, budget, and keep records.<br>❑ Operate machines and keep them in good repair. | ❑ Self-reliant (able to do it yourself)<br>❑ Nature lover<br>❑ Physically active<br>❑ Planner<br>❑ Creative problem solver | ❑ Math<br>❑ Life Sciences<br>❑ Earth Sciences<br>❑ Chemistry<br>❑ Agriculture | Total |
| 2 | ❑ Read and follow instructions and/or blueprints.<br>❑ Picture in my mind what a finished product looks like.<br>❑ Work with my hands.<br>❑ Perform work that requires precise results.<br>❑ Solve technical problems.<br>❑ Visit and learn from beautiful, historic, or interesting buildings.<br>❑ Follow logical, step-by-step procedures. | ❑ Curious<br>❑ Good at following directions<br>❑ Pay attention to detail<br>❑ Good at visualizing possibilities<br>❑ Patient and persistent | ❑ Math<br>❑ Drafting<br>❑ Physical Sciences<br>❑ Construction Trades<br>❑ Electrical Trades/Heat, Air Conditioning and Refrigeration/ Technology Education | Total |
| 3 | ❑ Use my imagination to communicate new information to others.<br>❑ Perform in front of others.<br>❑ Read and write.<br>❑ Play a musical instrument.<br>❑ Perform creative, artistic activities.<br>❑ Use video and recording technology.<br>❑ Design brochures and posters. | ❑ Creative and imaginative<br>❑ Good communicator/good vocabulary<br>❑ Curious about new technology<br>❑ Relate well to feelings and thoughts of others<br>❑ Determined/tenacious | ❑ Art/Graphic Design<br>❑ Music<br>❑ Speech and Drama<br>❑ Journalism/Literature<br>❑ Audiovisual Technologies | Total |
| 4 | ❑ Perform routine, organized activities but can be flexible.<br>❑ Work with numbers and detailed information.<br>❑ Be the leader in a group.<br>❑ Make business contact with people.<br>❑ Work with computer programs.<br>❑ Create reports and communicate ideas.<br>❑ Plan my work and follow instructions without close supervision. | ❑ Organized<br>❑ Practical and logical<br>❑ Patient<br>❑ Tactful<br>❑ Responsible | ❑ Business Technology Applications<br>❑ Accounting<br>❑ Math<br>❑ English/Language Arts<br>❑ Economics | Total |
| 5 | ❑ Communicate with different types of people.<br>❑ Help others with their homework or to learn new things.<br>❑ Go to school.<br>❑ Direct and plan activities for others.<br>❑ Handle several responsibilities at once.<br>❑ Acquire new information.<br>❑ Help people overcome their challenges. | ❑ Friendly<br>❑ Decision maker<br>❑ Helpful<br>❑ Innovative/Inquisitive<br>❑ Good listener | ❑ English/Language Arts<br>❑ Social Studies<br>❑ Math<br>❑ Science<br>❑ Psychology | Total |
| 6 | ❑ Work with numbers.<br>❑ Work to meet a deadline.<br>❑ Make predictions based on existing facts.<br>❑ Have a clear set of rules to follow.<br>❑ Analyze financial information and interpret it to others.<br>❑ Handle money with accuracy and reliability.<br>❑ Take pride in the way I dress and look. | ❑ Trustworthy<br>❑ Orderly<br>❑ Self-confident<br>❑ Logical<br>❑ Methodical or efficient | ❑ Accounting<br>❑ Math<br>❑ Economics<br>❑ Banking/Financial Services<br>❑ Business Law | Total |
| 7 | ❑ Be involved in politics.<br>❑ Negotiate, defend, and debate ideas and topics.<br>❑ Plan activities and work cooperatively with others.<br>❑ Work with details.<br>❑ Perform a variety of duties that may change often.<br>❑ Analyze information and interpret it to others.<br>❑ Travel and see things that are new to me. | ❑ Good communicator<br>❑ Competitive<br>❑ Service minded<br>❑ Well organized<br>❑ Problem solver | ❑ Government<br>❑ English/Language Arts<br>❑ Social Studies<br>❑ Math<br>❑ Foreign Language | Total |
| 8 | ❑ Work under pressure.<br>❑ Help sick people and animals.<br>❑ Make decisions based on logic and information.<br>❑ Participate in health and science classes.<br>❑ Respond quickly and calmly in emergencies.<br>❑ Work as a member of a team.<br>❑ Follow guidelines precisely and meet strict standards of accuracy. | ❑ Compassionate and caring<br>❑ Good at following directions<br>❑ Conscientious and careful<br>❑ Patient<br>❑ Good listener | ❑ Biological Sciences<br>❑ Chemistry<br>❑ Math<br>❑ Health-Related Careers Classes<br>❑ English/Language Arts | Total |

**Source:** Adapted from the Guidance Division Survey, Oklahoma Department of Career and Technology Education (2005)

**Note:** This survey does not make any claims of statistical reliability and has not been normed. It is intended for use as a guidance tool to generate discussion regarding careers and is valid for that purpose.

**Disclaimer:** Your interests may change over time. These survey results are intended to assist you with informal career exploration. Consider more formal assessments and other resources or services to help you plan your career.

**Terminology:** For definitions of terminology used in the survey, visit ***www.nd.gov/cte/crn/toolkit/docs/TermDefinitions.pdf.***

| | Activities that describe what I like to do: | Personal qualities that describe me: | School subjects that I like: | Total number ☑ checked |
|---|---|---|---|---|
| 9 | ❑ Investigate new places and activities.<br>❑ Work with all ages and types of people.<br>❑ Organize activities in which other people enjoy themselves.<br>❑ Have a flexible schedule.<br>❑ Help people make up their minds.<br>❑ Communicate easily, tactfully, and courteously.<br>❑ Learn about other cultures. | ❑ Tactful<br>❑ Self-motivated<br>❑ Works well with others<br>❑ Outgoing<br>❑ Slow to anger | ❑ English/Language Arts/Speech<br>❑ Foreign Language<br>❑ Social Sciences<br>❑ Marketing<br>❑ Food Services | Total |
| 10 | ❑ Care about people, their needs, and their problems.<br>❑ Volunteer my services for the good of the community.<br>❑ Listen to other people's viewpoints.<br>❑ Help people be at their best.<br>❑ Work with people from preschool age to old age.<br>❑ Think of new ways to do things.<br>❑ Make friends with different kinds of people. | ❑ Good communicator/good listener<br>❑ Caring<br>❑ Non-materialistic<br>❑ Uses intuition (instinct) and logic<br>❑ Non-judgmental | ❑ English/Language Arts<br>❑ Psychology/Sociology<br>❑ Family and Consumer Sciences<br>❑ Finance<br>❑ Foreign Language | Total |
| 11 | ❑ Work with computers.<br>❑ Reason clearly and logically to solve complex problems.<br>❑ Use machines, techniques, and processes.<br>❑ Read technical materials and diagrams and solve technical problems.<br>❑ Adapt to change.<br>❑ Play video games and figure out how they work.<br>❑ Concentrate for long periods without being distracted. | ❑ Logical/analytical thinker<br>❑ See details in the big picture<br>❑ Persistent<br>❑ Good concentration skills<br>❑ Precise and accurate | ❑ Math<br>❑ Science<br>❑ Computer Tech/Applications<br>❑ Communications<br>❑ Graphic Design | Total |
| 12 | ❑ Work under pressure or in the face of danger.<br>❑ Make decisions based on my own observations.<br>❑ Interact with other people.<br>❑ Be in positions of authority.<br>❑ Respect rules and regulations.<br>❑ Debate and win arguments.<br>❑ Observe and analyze people's behavior. | ❑ Adventurous<br>❑ Dependable<br>❑ Community-minded<br>❑ Decisive<br>❑ Optimistic | ❑ English/Language Arts<br>❑ Psychology/Sociology<br>❑ Government/Social Studies<br>❑ Law Enforcement<br>❑ First Aid/First Responder | Total |
| 13 | ❑ Work with hands and learn that way.<br>❑ Put things together.<br>❑ Do routine, organized and accurate work.<br>❑ Perform activities that produce real, concrete results.<br>❑ Apply math to work out solutions.<br>❑ Use hand and power tools and operate equipment machinery.<br>❑ Visualize objects in three dimensions from flat drawings. | ❑ Practical<br>❑ Observant<br>❑ Physically active<br>❑ Step-by-step thinker<br>❑ Coordinated | ❑ Math-Geometry<br>❑ Chemistry<br>❑ Trade and Industry Courses<br>❑ Physics<br>❑ English/Language Arts | Total |
| 14 | ❑ Shop and go to the mall.<br>❑ Be in charge.<br>❑ Make displays and promote ideas.<br>❑ Give presentations and enjoy public speaking.<br>❑ Persuade people to buy products or to participate in activities.<br>❑ Communicate my ideas to other people.<br>❑ Take advantage of opportunities to make extra money. | ❑ Enthusiastic<br>❑ Competitive<br>❑ Creative<br>❑ Self-motivated<br>❑ Persuasive | ❑ English/Language Arts<br>❑ Math<br>❑ Business Education/ Marketing<br>❑ Economics<br>❑ Computer Applications | Total |
| 15 | ❑ Interpret formulas.<br>❑ Find the answers to questions.<br>❑ Work in a laboratory.<br>❑ Figure out how things work and investigate new things.<br>❑ Explore new technology.<br>❑ Experiment to find the best way to do something.<br>❑ Pay attention to details and be precise. | ❑ Detail oriented<br>❑ Inquisitive<br>❑ Objective<br>❑ Methodical<br>❑ Mechanically inclined | ❑ Drafting/Computer-Aided Drafting<br>❑ Math<br>❑ Science<br>❑ Electronics/Computer Networking<br>❑ Technical Classes/ Technology Education | Total |
| 16 | ❑ Travel.<br>❑ See well and have quick reflexes.<br>❑ Solve mechanical problems.<br>❑ Design efficient processes.<br>❑ Anticipate needs and prepare to meet them.<br>❑ Drive or ride.<br>❑ Move things from one place to another. | ❑ Realistic<br>❑ Mechanical<br>❑ Coordinated<br>❑ Observant<br>❑ Planner | ❑ Math<br>❑ Trade and Industry Courses<br>❑ Physical Sciences<br>❑ Economics<br>❑ Foreign Language | Total |

**Indicate your top three Clusters of Interest based on the number of checks in the Survey:**

| | | | |
|---|---|---|---|
| 1 | Agriculture, Food & Natural Resources | P. 14 | |
| 2 | Architecture & Construction | P. 17 | |
| 3 | Arts, A/V Technology & Communications | P. 19 | |
| 4 | Business Management & Administration | P. 21 | |
| 5 | Education & Training | P. 24 | |
| 6 | Finance | P. 26 | |
| 7 | Government & Public Administration | P. 27 | |
| 8 | Health Science | P. 28 | |
| 9 | Hospitality & Tourism | P. 32 | |
| 10 | Human Services | P. 34 | |
| 11 | Information Technology | P. 36 | |
| 12 | Law, Public Safety, Corrections & Security | P. 38 | |
| 13 | Manufacturing | P. 40 | |
| 14 | Marketing | P. 42 | |
| 15 | Science, Technology, Engineering & Mathematics | P. 44 | |
| 16 | Transportation, Distribution & Logistics | P. 46 | |

For more information see your career or school counselor, or visit a career and technical center, an institution of higher education, Job Service North Dakota, or go to RUReadyND.com

# Careers by Education

| | | Typical Entry Level Education & Career | Total Openings | Average 2014 Wage | Examples of Tasks Performed |
|---|---|---|---|---|---|
| High School Diploma or Equivalent | 1 | **Farmers, Ranchers, & Other Agricultural Mgrs.** | 4,250 | $79,010 | Run establishments that produce crops, livestock, & dairy products. |
| | 2 | **Office Clerks, General** | 3,008 | $25,810 | Perform office tasks, including answering telephones, word processing, copying documents, & maintaining records. |
| | 3 | **Bookkeeping, Accounting, & Auditing Clerks** | 2,216 | $36,580 | Produce financial records for organizations including transactions, statements, & checking records for accuracy. |
| | 4 | **Customer Service Representatives** | 2,006 | $32,070 | Handle customer complaints, process orders, & provide information about products & services. |
| | 5 | **Sales Rep., Wholesale & Mfg, Exc. Tech. Products** | 1,661 | $67,180 | Sell goods to businesses or groups of individuals. Work requires substantial knowledge of items sold. |
| | 6 | **Childcare Workers** | 1,647 | $20,190 | Care for children's basic needs, such as bathing & feeding, when family members are unavailable. |
| | 7 | **Service Unit Operators, Oil, Gas, & Mining** | 1,450 | $54,350 | Operate equipment to increase oil flow from producing wells or to remove obstructions from wells. |
| | 8 | **First-Line Supervisors of Retail Sales Workers** | 1,399 | $42,350 | Duties may include management functions, such as purchasing, budgeting, accounting, & personnel work. |
| | 9 | **Carpenters** | 1,341 | $38,190 | Construct & repair building structures—such as partitions, rafters, siding, & drywall. |
| | 10 | **Supervisors, Food Preparation & Serving Workers** | 1,332 | $32,490 | Directly supervise & coordinate activities of workers engaged in preparing & serving food. |
| | 11 | **Teacher Assistants** | 1,312 | $30,250 | Work under a teacher's supervision to give students additional attention & instruction. |
| | 12 | **Secretaries, Except Legal, Medical, & Executive** | 1,269 | $35,270 | Perform clerical functions such as correspondence, appointments, & organizing files. |
| | 13 | **Electricians** | 1,175 | $56,350 | Install & maintain electrical power, communications, lighting, & control systems in homes & factories. |
| | 14 | **Receptionists & Information Clerks** | 1,174 | $26,530 | Provide information to the general public & customers regarding activities conducted at establishment. |
| | 15 | **Tellers** | 1,166 | $26,940 | Responsible for accurately processing routine transactions at a bank, including cashing checks & depositing money. |
| Postsecondary Non-Degree Award | 1 | **Heavy & Tractor-Trailer Truck Drivers** | 2,943 | $50,810 | Transport goods from one location to another. Most tractor-trailer drivers are long-haul drivers. |
| | 2 | **Nursing Assistants** | 2,452 | $28,860 | Provide basic care for patients in hospitals & residents of long-term care facilities such as nursing homes. |
| | 3 | **Licensed Practical & Licensed Vocational Nurses** | 1,499 | $39,790 | Observe patients, chart & report changes in patients' conditions. |
| | 4 | **Welders, Cutters, Solderers, & Brazers** | 1,257 | $50,310 | Weld & solder components, dismantle metal assemblies, & analyze blueprints. |
| | 5 | **Automotive Service Technicians & Mechanics** | 933 | $40,360 | Examine vehicles, compile estimates of repair costs, & secure approval to perform repairs. |
| | 6 | **Hairdressers, Hairstylists, & Cosmetologists** | 623 | $30,000 | Determine & recommend beauty treatment, suggest hair styles, & cut hair. |
| | 7 | **Bus & Truck Mechanics & Diesel Engine Spec.** | 555 | $49,140 | Perform routine maintenance such as lubricating equipment & machinery. |
| | 8 | **Emergency Medical Technicians & Paramedics** | 375 | $29,130 | Administer first-aid treatment & life-support care to persons in a pre-hospital setting. |
| | 9 | **Heating, Air Cond., Refrigeration Mechanics** | 351 | $50,710 | Reassemble & test equipment following repairs. |
| | 10 | **Medical Records & Health Info. Technicians** | 351 | $35,860 | Protect the security of medical records to ensure that confidentiality is maintained. |
| Associates Degree | 1 | **Registered Nurses** | 3,134 | $58,120 | Monitor all aspects of patient care, modify treatment, & consult with healthcare team. |
| | 2 | **Computer User Support Specialists** | 780 | $47,140 | Answer user inquiries regarding computer software or hardware to resolve problems. |
| | 3 | **Dental Hygienists** | 340 | $63,030 | Clean teeth, examine gums, develop x-ray film & watch for signs of decay or gum disease. |
| | 4 | **Preschool Teachers, Except Special Education** | 227 | $34,650 | Educate & care for children, ages 3 to 5, in a way that young children can understand. |
| | 5 | **Medical & Clinical Laboratory Technicians** | 216 | $42,560 | Perform medical research, including chemical analysis, to further control & cure disease. |
| | 6 | **Radiologic Technologists** | 201 | $47,950 | Operate x-ray equipment, process radiographs, review & evaluate x-ray images. |
| | 7 | **Mechanical Engineering Technicians** | 154 | $54,050 | Modify, develop, test, or calibrate machinery & equipment under direction of engineers. |
| | 8 | **Paralegals & Legal Assistants** | 150 | $42,000 | Prepare legal documents, including briefs, pleadings, appeals, wills, & contracts. |
| | 9 | **Civil Engineering Technicians** | 140 | $48,660 | Calculate dimensions, profile & component specifications, & material quantities. |
| | 10 | **Respiratory Therapists** | 136 | $50,000 | Set up & operate devices such as mechanical ventilators for specified treatment. |

| | | Typical Entry Level Education & Career | Total Openings | Average 2014 Wage | Examples of Tasks Performed |
|---|---|---|---|---|---|
| Bachelor's Degree | 1 | **General & Operations Managers** | 2,239 | $103,370 | Oversee activities directly related to making products or providing services. |
| | 2 | **Elementary Teachers, Except Special Education** | 2,006 | $47,710 | Instruct elementary students individually & in groups using various teaching methods. |
| | 3 | **Accountants & Auditors** | 1,854 | $56,230 | Prepare, examine, or analyze accounting records, financial statements, or financial reports. |
| | 4 | **Secondary Teachers, Except Special & Career Education** | 1,008 | $48,150 | Instruct students through lectures, discussions, & demonstrations in one or more subjects. |
| | 5 | **Chief Executives** | 677 | $163,230 | Direct an organization to fund operations, maximize investments, & increase efficiency. |
| | 6 | **Civil Engineers** | 534 | $74,850 | Analyze reports, maps, blueprints, & other topographical or geologic data to plan projects. |
| | 7 | **Industrial Engineers** | 443 | $75,300 | Analyze statistical data & establish quality & reliability objectives of finished product. |
| | 8 | **Petroleum Engineers** | 442 | $121,530 | Devise methods to improve oil & gas extraction, & determine the need for new or modified tool designs. |
| | 9 | **Financial Managers** | 428 | $104,810 | Process loans, prepare financial statements, & coordinate financial planning. |
| | 10 | **Graduate Teaching Assistants** | 410 | $39,660 | Assist faculty in postsecondary institutions by teaching lower level courses. |
| | 11 | **Market Research Analysts & Marketing Specialists** | 409 | $51,160 | Study market conditions to help companies understand what products people want, who will buy them, & at what price. |
| | 12 | **Software Developers, Applications** | 363 | $64,860 | Develop, create, & modify general computer applications software. Analyze user needs & develop software solutions. |
| | 13 | **Loan Officers** | 354 | $66,550 | Evaluate, authorize, or recommend approval of commercial, real estate, or credit loans. |
| | 14 | **Medical & Health Services Managers** | 354 | $80,950 | Direct, supervise, & evaluate work activities of medical, technical, & service personnel. |
| | 15 | **Sales Managers** | 345 | $99,570 | Monitor customer preferences, determine price schedules, & resolve complaints. |
| Master's, Doctoral, or Professional Degree | 1 | **Lawyers** | 384 | $91,540 | Advise clients, prosecute or defend lawsuits, legal rights, & obligations. |
| | 2 | **Pharmacists** | 328 | $113,660 | Review prescriptions for accuracy, ascertain ingredients, & evaluate their suitability. |
| | 3 | **Physical Therapists** | 289 | $69,900 | Prepare & carry out individually designed programs of physical treatment for patients. |
| | 4 | **Nurse Practitioners** | 255 | $88,520 | Diagnose & treat illness, independently or as part of a healthcare team. May order lab work & x-rays. |
| | 5 | **Educational, School, & Vocational Counselors** | 231 | $54,540 | Counsel individuals & provide group educational & vocational guidance services. |
| | 6 | **Family & General Practitioners** | 226 | $173,590 | Diagnose, treat, & help prevent diseases & injuries that commonly occur in the general population. |
| | 7 | **Clergy** | 217 | $48,500 | Conduct religious worship & perform other functions associated with beliefs & practices of religious faith or denomination. |
| | 8 | **Education Administrators, Elementary & Secondary** | 193 | $84,710 | Review, modify or approve new programs, & submit program proposals to school board. |
| | 9 | **Healthcare Social Workers** | 173 | $45,450 | Provide psychosocial support needed to cope with chronic, acute, or terminal illnesses. |
| | 10 | **Speech-Language Pathologists** | 169 | $61,090 | Assess, diagnose, treat, & help to prevent communication & swallowing disorders in patients. |
| | 11 | **Occupational Therapists** | 168 | $63,070 | Occupational therapists treat injured, ill, or disabled patients through the therapeutic use of everyday activities. |
| | 12 | **Physicians/Surgeons** | 164 | $217,010 | Physicians who treat diseases, injuries, & deformities by surgical methods. |
| | 13 | **Physician Assistants** | 148 | $96,010 | Practice medicine on a team under the supervision of physicians & surgeons. |
| | 14 | **Librarians** | 143 | $49,900 | Help people find information & conduct research for personal & professional use. |
| | 15 | **Nurse Anesthetists** | 122 | $174,360 | Administer anesthesia, monitor patient's vital signs, & oversee patient recovery from anesthesia. |

**METHODOLOGY:** These careers were selected based on the projected growth and replacement openings published in Job Service North Dakota's 2012-2022 Long-Term Employment Projections report. The skills and tasks are based on O*NET 15 data.

**TOTAL OPENINGS INCLUDE GROWTH AND REPLACEMENT OPENINGS:** Growth openings are the number of anticipated openings due to new job growth. Replacement openings are the number of anticipated openings due to workers who permanently leave an occupation (i.e., retirement, death, etc.)

**TYPICAL ENTRY-LEVEL EDUCATION:** Typical entry-level education describes the education level most workers need to enter the occupation. The typical entry-level education is based on data from the U.S. Bureau of Labor Statistics and may differ by region or employer.

**AVERAGE 2014 WAGES:** Wage information was taken from Job Service North Dakota's 2014 Employment and Wages by Occupation report. Wage data excludes overtime pay, bonuses, and earnings from self-employed workers.

# Is STEM in Your Future?

**STEM workers use their knowledge of Science, Technology, Engineering, and/or Math to understand how the world works and to solve problems. STEM occupational fields are closely related and build on each other. Strong thinking and communication skills combined with education and experience will help you get started in a STEM career.**

**Employment in occupations related to STEM – Science, Technology, Engineering and Mathematics, are projected to grow more than 9 million between 2012 and 2022. A sample of North Dakota STEM occupations with expected high growth are shown below:**

| Employment | | | | | |
|---|---|---|---|---|---|
| Occupation | Entry Level Wage, May 2014 | 2012 | Projected 2022 | Percent Change | Typical Entry-level Education |
| Software Developers, Systems Software | $50,660 | 775 | 1,010 | 30.3% | Bachelor's Degree |
| Operations Research Analysts | $50,880 | 114 | 165 | 44.7% | Bachelor's Degree |
| Landscape Architects | $42,440 | 51 | 66 | 29.4% | Bachelor's Degree |
| Electrical Engineers | $62,760 | 266 | 330 | 24.1% | Bachelor's Degree |
| Electrical and Electronics Drafters | $32,360 | 73 | 95 | 30.1% | Associate's Degree |
| Industrial Engineering Technicians | $34,560 | 122 | 182 | 49.2% | Associate's Degree |
| Diagnostic Medical Sonographers | $51,550 | 43 | 63 | 46.5% | Associate's Degree |
| Audiologists | $55,790 | 30 | 40 | 33.3% | Doctoral or Professional Degree |
| Cardiovascular Technologists and Technicians | $26,750 | 72 | 98 | 36.1% | Associate's Degree |
| Veterinary Technologists and Technicians | $25,330 | 189 | 253 | 33.9% | Associate's Degree |

*Job Service North Dakota provides the following data: 2012-2022 ND Employment Projections based on Bureau of Labor Statistics data. 2014 ND Employment and Wages based on Occupational Employment Statistics (OES).*

# With so many career options available, where do you start?

The Career Outlook magazine is designed to provide career exploration and planning information. This edition includes articles featuring the career paths of eleven individuals. Each person currently works within a specific career cluster and pathway. However, transitioning to a different pathway or cluster is an option for each of them based on their education, skill level and interests.

*How many options does your career plan have?*

**Cody Roland**
Agriculture, Food & Natural Resources Career Cluster – Agribusiness Pathway

**Chelsey Flick**
Business Management & Administration Career Cluster – General Management Pathway

**Allyse Hoge**
Education & Training Career Cluster – Teaching & Training Pathway

**Melissa Wagner**
Health Science Career Cluster – Therapeutic Services Pathway

**Kylie Oversen**
Law, Public Safety, Corrections & Security Career Cluster – Legal Services Pathway

**Betty Dollinger-Homme**
Manufacturing Career Cluster – Production Pathway

**Justin Welk**
Marketing Career Cluster – Marketing Management Pathway

**Tasha Steinbach**
Science, Technology, Engineering & Mathematics Career Cluster – Engineering & Technology Pathway

The Entrepreneurship article features *Keenan Hauff, Logan Hauff, and Caleb Hauff* of

**Threefold Video Production**

Arts, A/V Technology & Communication Career Cluster – Audio & Video Technology and Film Pathway

# How to Use THE OCCUPATIONAL SECTION

| 1 Occupational Title/Description | 2 Related Occupations | Nat'l Employment ND Employment/ Total Openings ND Earnings 3 | Holland Type 4 Rating 5 | 6 Hiring Practices |
|---|---|---|---|---|
| **AGRICULTURE** | **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | |
| **Agricultural and Food Science Technicians** Work with agricultural and food scientists in food, fiber, and animal research, production, and processing; and assist with animal breeding and nutrition. Includes technicians who assist food scientists in the research and development of production technology, quality control, packaging, processing, and use of foods. | Dairy Technologist; Feed Research Technician; Seed Analyst | 25,900 ↘ 83/31 ↘ $28,830-$37,890 | Realistic | Many employers prefer applicants who have at least 2 years of specialized training or an associate's degree in applied science or science-related technology. |
| **Agriculture Equipment Operators** Drive and control farm equipment to till soil and to plant, cultivate, and harvest crops. May perform tasks such as crop baling or harvesting. | Combine Operator; Hay Baler; Tractor Operator | 59,000 ↘ 1,449/567 ↘ $26,210-$35,510 | Realistic | Agricultural workers typically receive on-the-job training. |

(Example)

**1 Occupational Title/Description** - Most commonly used title for the occupation and a description that provides a general idea of the tasks associated with this occupation. The (M), just after the title, indicates this occupation exists in the military.

E : Energy Occupations in North Dakota

**2 Related Occupations** - A listing of occupations that are similar in work performed on the job.

**3 Nat'l Employment, ND Employment, Total Openings, ND Earnings** - National Employment indicates the number of persons employed in this occupation in the United States. ND Employment indicates the number of persons employed in this occupation in North Dakota with the projected total number of job openings each year shown after the slash. The arrows indicate the projected growth of this occupation for the nation and for North Dakota:

Exceptional ↑ (25.6% or more per year);
High Growth ↗ (16.0-25.5% per year);
Average to Near Average Growth → (9.7-15.9% per year);
Below Average Growth ↘ (0.1-9.6% per year); and
Zero to Declining Growth ↓ (0% or less per year).

ND Earnings is a range of salaries for those employed in the occupation in the State. Some salaries will have a "US" at the end, which indicates North Dakota salaries were not available, so a national average was used. **The salaries shown reflect a 40-hour work week for many occupations. Be aware it is possible to earn a considerably higher salary in those occupations where overtime wages are paid.**

**4 Holland Type**

***Artistic (Creator):*** Artistic occupations frequently involve working with forms, designs and patterns. They often require self-expression, and the work can be done without following a clear set of rules.
***Conventional (Organizer):*** Conventional occupations frequently involve following set procedure and routines. These occupations can include working with data and details more than ideas. Usually there is a clear line of authority to follow.
***Enterprising (Persuader):*** Enterprising occupations frequently involve starting and carrying out projects. These occupations can involve leading people and making decisions. Sometime they require risk taking and often deal with business.
***Investigative (Thinker):*** Investigative occupations frequently involve working with ideas and require an extensive amount of thinking. These occupations can involve searching for the facts and figuring out problems mentally.
***Realistic (Do-er):*** Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals and real-world materials like wood, tools and machinery. Many of the occupations require working outside and do not involve a lot of paperwork or working closely with others.
***Social (Helper):*** Social occupations frequently involve working with, communicating with, and teaching people. These occupations often involve helping or providing service to others.

For more information about Holland Types, visit
***www.nd.gov/cte/crn/docs/HollandTypes.pdf***

**5 Rating**

$ : High Wage - North Dakota average annual salary of at least $47,779.

: High Skill - Occupation requires at least one year of post high school education or training.

: Bright Outlook - Occupation has a very high number of annual openings and/or is a fast growing occupation in North Dakota.

**6 Hiring Practices** - Information or hints to enhance opportunities for entering this occupation. Preferred specific training, minimum requirements, preferred experiences, required licensing, and types of businesses employing the occupation are given.

**Career Clusters** The occupational and related information in the Career Outlook is broken into sixteen Career Clusters, listed below. You are encouraged to use the Career Clusters Interest Survey on pages 6 and 7 or in RUReadyND.com to help identify the cluster or clusters most closely related to your personal preferences and interests.


| Career Cluster | | Page | Career Cluster | | Page |
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| 1 | Agriculture, Food & Natural Resources | P. 14 | 9 | Hospitality & Tourism | P. 32 |
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| 3 | Arts, A/V Technology & Communications | P. 19 | 11 | Information Technology | P. 36 |
| 4 | Business Management & Administration | P. 21 | 12 | Law, Public Safety, Corrections & Security | P. 38 |
| 5 | Education & Training | P. 24 | 13 | Manufacturing | P. 40 |
| 6 | Finance | P. 26 | 14 | Marketing | P. 42 |
| 7 | Government & Public Administration | P. 27 | 15 | Science, Technology, Engineering & Mathematics | P. 44 |
| 8 | Health Science | P. 28 | 16 | Transportation, Distribution & Logistics | P. 46 |


*The occupation information in this section is taken from the 2012-2022 North Dakota Employment Projections, 2014 Edition. This publication is a long-term look at future employment levels by industry and occupation updated every two years by Job Service North Dakota, working closely with the Bureau of Labor Statistics. Wages were updated using the 2014 Edition of the North Dakota Employment and Wages by Occupation, which is updated annually by Job Service North Dakota. When current figures are not included in these publications, every effort is made to obtain current and relevant data from those fields.*

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*M-stands for Military

# AGRICULTURE, FOOD & NATURAL RESOURCES

**The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Agricultural and Food Science Technicians** Work with agricultural and food scientists in food, fiber, and animal research, production, and processing; and assist with animal breeding and nutrition. Includes technicians who assist food scientists in the research and development of production technology, quality control, packaging, processing, and use of foods. | Dairy Technologist; Feed Research Technician; Seed Analyst | 25,900 ↘<br>83/31 ↘<br>$28,830-$37,890 | Realistic | Many employers prefer applicants who have at least 2 years of specialized training or an associate's degree in applied science or science-related technology. |
| **Agriculture Equipment Operators** Drive and control farm equipment to till soil and to plant, cultivate, and harvest crops. May perform tasks such as crop baling or harvesting. | Combine Operator; Hay Baler; Tractor Operator | 59,000 ↘<br>1,449/567 ↘<br>$26,210-$35,510 | Realistic | Agricultural workers typically receive on-the-job training. |
| E **Electrical Power-Line Installers and Repairers** Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy duty transmission towers. | Electric Powerline Examiner; Electric Utility Lineworker; Electrical High Tension Tester; Electrical Lineworker | 114,500 ↘<br>1,013/513 →<br>$46,220-$63,050 | Realistic | Preference is given to those who have completed formal apprenticeship or career and technical education training. Must be able to lift 50+ lbs, be in confined spaces, heights, climb stairs and ladders. Hired by public utilities and power distribution facilities. |
| E **Excavating, Loading Machine and Dragline Operators** Operate or tend machinery equipped with scoops, shovels, or buckets, to excavate and load loose materials. | Backhoe Operator; Payloader Operator; Shovel Operator | 50,700 ↗<br>680/182 ↗<br>$39,280-$52,320 | Realistic | Trained on the job or through career and technical education or apprenticeship programs. Should have average mechanical ability. Must be willing to work outdoors and work irregular hours. |
| **Farm Equipment Mechanics and Service Technicians** Diagnose, adjust, repair, or overhaul farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems. | Combine Mechanic; Dairy Equipment Repairer; Irrigation Equipment Mechanic | 35,800 ↘<br>835/424 ↗<br>$30,490-$42,000 | Realistic | Prefer high school graduate with past experience, career and technical education, or apprenticeship training. Farm background an advantage. |

## Cody Roland • Crosby - Divide County High School

Choosing a college major wasn't an easy decision for **Cody Roland**. He was interested in a lot of different types of programs. After discussing various options with his parents, friends and college personnel, he selected a Business Administration and Accounting degree at the University of Jamestown. He knew there would be flexibility and many opportunities within the Business field.

During high school, Cody was a State FBLA officer and involved with PBL in college. Having the opportunity to compete in presentation and job-related events helped to build his confidence in public speaking and interviewing skills. After graduation, Cody worked for two and a half years as an Auditor/Consultant at Deloitte in Minneapolis.

Cody recently returned to Crosby to become more actively involved in Legume Logic, a company his father started 25 years ago. Most of the work at Legume Logic is in the Research and Development area. The company takes new seed varieties from countries such as Denmark and Germany, and works with growers in Montana, Nebraska, North and South Dakota to determine usability in the upper Great Plains. Field peas and other legumes are a valued addition to a producer's crop rotation, as these crops capture and fix nitrogen within the soil. Because the quality of the soil is improved with pulse crops, it is typical to see higher yields and test weights in subsequent years. Cody estimates 400,000 acres of green and yellow peas will be planted in North Dakota during the 2015 growing season.

Cody has been focused on broadening his knowledge of the agricultural industry. "My contribution to the company has been the application of business knowledge, sales and marketing strategies and accounting skills." On a daily basis, Cody has many different types of work. He oversees website management, finances, preparation for seed trials, development of advertising, meeting with distributors, and has the opportunity to travel across the Midwest as well as internationally for shows.

Knowledge of the end market is important for Legume Logic's success. Growth continues in the exportation of edible beans and peas to Egypt, India and Asian markets. "Field peas are also used as an ingredient within the pet food industry. This market has seen tremendous growth in recent years." Crops may also be converted to powdered protein, fiber and starch content for mixing with other products. The demand continues for higher nutritional content, expansion of the gluten-free market and increased awareness of Non-Genetically Modified Organisms or Non-GMOs.

"Regardless of the career path you take, have a positive attitude, a great work ethic and show a genuine interest in people and what you are doing. This will help you be successful in anything you do."

# AGRICULTURE, FOOD & NATURAL RESOURCES

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree *(continued)*** | | | | |
| **Farm Products Buyers and Purchasing Agents** Purchase farm products either for further processing or resale. Includes tree farm contractors, grain brokers and market operators, grain buyers, and tobacco buyers. | Cotton Broker; Fruit Buyer; Livestock Buyer | 14,200 ↘<br>159/49 →<br>$38,330-$63,120 | Enterprising<br>$ | Training ranges from a high school diploma to a bachelor's degree. Experience working with livestock and knowledge of various breeds necessary. Good communication skills essential. |
| **Farmers and Ranchers** Plan, direct, or coordinate the management or operation of farms, ranches, greenhouses, aquacultural operations, nurseries, timber tracts, or other agricultural establishments. May hire, train, and supervise farm workers to carry out the day-to-day activities of the managed operation. May engage in or supervise planting, cultivating, harvesting, and financial and marketing activities. | Animal Husbandry Manager; Dairy Farm Manager; Fish Hatchery Manager; Orchard Manager | 930,600 ↓<br>26,338/4,638 ↘<br>N/A | Enterprising | Past experience and growing up on a farm enhances success in the occupation. Some larger farms hire farm managers to oversee farm operations. Many farms and ranches are managed by several family members. |
| **Machinists (M)** Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures. | Automotive Machinist; Gear Machinist; Production Machinist | 397,500 ↘<br>980/483 ↑<br>$32,010-$41,940 | Realistic | Completion of apprenticeship, career and technical education or on-the-job training necessary. Mechanical ability essential. Hired by manufacturers and federal government. |
| E **Power Plant Operators** Control, operate, or maintain machinery to generate electric power. Includes auxiliary equipment operators. | Hydroelectric Plant Operator; Powerhouse Operator | 41,800 ↓<br>335/104 ↓<br>$56,120-$76,970 | Realistic<br>$ | Preference is given to those who have completed formal apprenticeship or career and technical education training. Good mechanical aptitude and mathematics skills are necessary. |
| E **Rotary Drill Operators, Oil and Gas** Set up or operate a variety of drills to remove underground oil and gas, or remove core samples for testing during oil and gas exploration. | Oil Well Cable Tool Operator; Oil Well Driller | 26,000 ↗<br>1,243/502 ↓<br>$43,080-$66,390 | Realistic<br>$ | Usually requires 2-3 years' industry experience and appropriate certifications. Must be able to work long hours in all weather conditions. |
| E **Service Unit Operators, Oil, Gas and Mining** Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools, or other obstructions from drilling wells. May also perform similar services in mining exploration operations. | Well Servicing Rig Operator | 59,300 ↗<br>3,587/1,450 ↓<br>$36,790-$54,350 | Realistic<br>$ | Requires previous oil industry experience, excellent customer service skills, and mechanical aptitude. A 2 year technical degree is often preferred. |
| E **Wind Turbine Service Technicians** Inspect, diagnose, adjust, or repair wind turbines. Perform maintenance on wind turbine equipment including resolving electrical, mechanical, and hydraulic malfunctions. | Wind Energy Technician; Wind Turbine Mechanic | 3,200 ↗<br>88/42 ↑<br>$44,350-$58,560 | Realistic<br>$ | Most learn their trade by attending a technical school. After completing a 2-year technical program, employers usually provide on-the-job training, typically lasting over 12 months. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Agricultural Engineers** Apply knowledge of engineering technology and science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing of agricultural products. | Agricultural Production Engineer; Agricultural Research Engineer; Farm Equipment Engineer | 2,600 ↘<br>44/13 ↘<br>$56,636-$84,433 | Investigative<br>$ | Work for manufacturers of farm equipment, electric utility companies, federal and state soil and water management agencies. Must be able to work as part of a team and be creative and have an analytical mind and capacity for detail. |
| **Agricultural Inspectors (M)** Inspect agricultural commodities, processing equipment, and facilities, and fish and logging operations, to ensure compliance with regulations and laws governing health, quality, and safety. | Cattle Examiner; Grain Sampler; Milk Tester | 17,000 ↓<br>163/76 ↗<br>$26,630-$40,470 | Realistic | Many require a college degree in addition to experience and successful scores on an examination. Knowledge of horticulture, livestock, and commodities helpful. Hired by federal, state and local governments. |
| E **Conservation Scientists** Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion. May instruct in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water. | Grassland Conservationist; Range Ecologist; Soil Conservationist | 22,100 ↘<br>220/64 ↓<br>$47,860-$64,780 | Investigative<br>$ | Minimum requirement is a bachelor's degree. Some are hired by extension services or local and state government. Others may teach at universities or work in private industry. |
| **Farm and Home Management Advisors** Advise, instruct, and assist individuals and families engaged in agriculture, agricultural-related processes, or home economics activities. Includes county agricultural agents, feed and farm management advisors, home economists, and extension service advisors. | Agricultural Extension Educator; Family Resource Management Specialist; Feed Management Advisor | 13,700 →<br>157/25 ↘<br>$41,690-$56,890 | Social<br>$ | Minimum requirement is a bachelor's degree in agriculture or family and consumer sciences. Must be able to work with people. Hired by federal or state government and extension service. |
| **Food Scientists and Technologists** Use chemistry, microbiology, engineering, and other sciences to study the principles underlying the processing and deterioration of foods; analyze food content to determine levels of vitamins, fat, sugar, and protein; research ways to make processed foods safe, palatable, and healthful; and apply food science knowledge to determine best ways to process, package, preserve, store, and distribute food. | Dairy Bacteriologist; Enologist; Food Safety Scientist | 19,400 →<br>126/46 ↘<br>$37,950-$54,560 | Investigative<br>$ | Agricultural and food science technicians typically need an associate's degree in biology, animal science, or a related field. Some positions may require a bachelor's degree. For those positions that require only a high school diploma, technicians typically need to have previous work experience. |
| **Foresters** Manage public and private forested lands for economic, recreational, and conservation purposes. May determine how to conserve wildlife habitats and how best to comply with environmental regulations. May devise plans for planting and growing new trees, monitor trees for healthy growth, and determine optimal harvesting schedules. | Environmental Protection Forester; Forest Ecologist; Timber Management Specialist | 12,000 ↘<br>20/7 ↘<br>$38,690-$49,720 | Realistic<br>$ | Forest and conservation technicians typically need an associate's degree in forestry or a related field. Employers look for technicians who have a degree that is accredited by the Society of American Foresters (SAF). |

# AGRICULTURE, FOOD & NATURAL RESOURCES

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – Bachelor's Degree or Higher *(continued)*** | | | | |
| **Hydrologists** Research the distribution, circulation, and physical properties of underground and surface waters; and study the form and intensity of precipitation, its rate of infiltration into the soil, movement through the earth, and its return to the ocean and atmosphere. | Hydrogeologist; Isotope Hydrologist; Surface Hydrologist | 7,400 →<br>41/17 →<br>$59,740-$80,990 | Investigative | For most jobs, hydrologists need a master's degree with a background in the natural sciences. Hydrologists may need a license in some states. |
| **Natural Science Managers** Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields. | Agricultural Research Director; Geophysical Manager; Ocean Program Administrator | 51,600 ↘<br>151/31 ↓<br>$73,130-$93,470 | Enterprising | Natural sciences managers need at least a bachelor's degree in a natural science or a related field. Most natural sciences managers work as scientists before becoming managers. |
| **Veterinarians (M)** Diagnose, treat, or research diseases and injuries of animals. Includes veterinarians who conduct research and development, inspect livestock, or care for pets and companion animals. | Animal Surgeon; Doctor of Veterinary Medicine (DVM); Veterinary Medicine Scientist; Wildlife Veterinarian | 70,300 →<br>195/90 →<br>$57,090-$85,940 | Investigative | Veterinarians must have a Doctor of Veterinary Medicine degree from an accredited veterinary college and a state license. |

## North Dakota Agriculture, Food & Natural Resources Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Agribusiness Systems** | ❑ Agriculture Industry and Technology (BSC)<br>❑ Agricultural Economics (WCS)<br>❑ Agricultural Production/Business Management (DSU, WSC)<br>❑ Agricultural Sales and Marketing (WSC)<br>❑ Agriculture (DCB, NDSCS)<br>❑ Agricultural Systems Management (WSC)<br>❑ Precision Agriculture (LRSC) | ❑ Agribusiness (NDSU)<br>❑ Agricultural Communication (NDSU)<br>❑ Agricultural Economics (NDSU)<br>❑ Agricultural Studies (DSU)<br>❑ Agricultural Systems Management (NDSU)<br>❑ Agriculture (NDSU) | ❑ Agribusiness (NDSU)<br>❑ International Agribusiness (NDSU) |
| **Animal Systems** | ❑ Agricultural Sales & Service/Equine (DSU)<br>❑ Animal Health Management (NDSU)<br>❑ Animal/Range Science (NDSCS, WSC)<br>❑ Pre-Veterinary Medicine/Vet Tech (BSC, DCB, TMCC, WSC)<br>❑ Equine Science (NDSU) | ❑ Agricultural Studies/Equine (DSU)<br>❑ Agricultural Studies/Range Management (DSU)<br>❑ Range Management (DSU)<br>❑ Animal/Range Science (NDSU)<br>❑ Veterinary Technology (NDSU)<br>❑ Equine Science (NDSU) | ❑ Animal/Range Science (NDSU) |
| **Environmental Service Systems** | ❑ Water & Wastewater Treatment (BSC)<br>❑ Environmental Technology/Science (FBCC, SBC, UTTC, WSC)<br>❑ Wind Energy Technician (LRSC)<br>❑ Energy Technician (SBC) | ❑ Environmental Science (DSC, FBCC, SBC)<br>❑ Energy Management (BSC) | ❑ Environmental & Conservation Science (NDSU, SBC)<br>❑ Environmental Engineering (NDSU, UND)<br>❑ Environmental Management (UND)<br>❑ Energy Management (UM) |
| **Food Products & Processing Systems** | | ❑ Food Safety (NDSU)<br>❑ Food Science (NDSU) | ❑ Food Safety (NDSU)<br>❑ Cereal Science (NDSU) |
| **Natural Resources Systems** | ❑ Farm/Ranch Management (BSC, DSU, FBCC, NDSCS, SBC)<br>❑ Natural Resources Management (CCCC, DCB, SBC, WSC)<br>❑ Wildlife & Fisheries Technology (DCB)<br>❑ Wildlife Management (DCB, NDSCS, TMCC)<br>❑ Petroleum Production Technology (BSC, WSC)<br>❑ Urban Forest Management (DCB) | ❑ Natural Resource Management (DSU, NDSU)<br>❑ Fisheries and Wildlife (UND, VCSU) | ❑ Natural Resource Management (NDSU)<br>❑ Sustainable Energy Engineering (UND) |
| **Plant Systems** | ❑ Crop Production Sales & Technology (NDSCS)<br>❑ Sustainable Vegetable Production (DCB)<br>❑ Crop and Weed Sciences (WSC)<br>❑ Floral Design and Greenhouse Technology (DCB) | ❑ Soil Science (DSU, NDSU)<br>❑ Crop and Weed Sciences (NDSU)<br>❑ Sports and Urban Turfgrass Management (NDSU)<br>❑ Horticulture (NDSU) | ❑ Soil Science (NDSU)<br>❑ Plant Pathology (NDSU)<br>❑ Plant Sciences/Horticulture (NDSU) |
| **Power, Structure, & Technical Systems** | ❑ Power Plant Technology (BSC)<br>❑ Technology in Agriculture (DSU, WSC)<br>❑ Oil Drilling (SBC)<br>❑ Petroleum Production Technology (BSC)<br>❑ John Deere Tech (NDSCS)<br>❑ Renewable Generation Technology (BSC)<br>❑ Geographic Info. Systems/Science (BSC, UTTC, WSC)<br>❑ Process Plant Technology (BSC, TMCC) | ❑ Agricultural and Biosystems Engineering (NDSU) | ❑ Agricultural and Biosystems Engineering (NDSU) |

## North Dakota Postsecondary Institutions

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **NDSCS** | ND State College of Science | www.ndscs.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov | **NDSU** | ND State University | www.ndsu.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu | **UM** | University of Mary | www.umary.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **UND** | University of North Dakota | www.und.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **WSC** | Williston State College | www.willistonstate.edu |

# ARCHITECTURE & CONSTRUCTION

**Designing, planning, managing, building and maintaining the built environment.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Architectural and Civil Drafters** Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Use knowledge of building materials, engineering practices, and mathematics to complete drawings. | Building Drafter; Civil Computer-Aided Design and Drafting Technician; Structural Drafter | 87,900 ↘<br>257/73 →<br>$37,980-$48,580 | Artistic | Employers prefer formal drafting training. Good finger dexterity and visual perception are important. Must be able to communicate with others and follow verbal and written instructions. Computer skills essential. |
| **Carpenters (M)** Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; and wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Includes brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways. | Building Carpenter; Custom Wood Stair Builder; Wood Floor Layer | 901,200 ↗<br>4,158/1,341 ↗<br>$29,120-$38,190 | Realistic | Preference may be given to applicants who have completed career and technical education or apprenticeship training program. The demand for carpenters is dependent on the construction activity. In North Dakota, carpentry work can be seasonal. May be self-employed. |
| **Cement Masons and Concrete Finishers** Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, roads, or curbs using a variety of hand and power tools. Align forms for sidewalks, curbs, or gutters; patch voids; and use saws to cut expansion joints. | Cement Patcher; Concrete Floor Installer; Concrete Swimming Pool Installer | 140,800 ↑<br>1,383/475 ↗<br>$31,300-$37,790 | Realistic | Although most cement masons and concrete learn on the job, some learn their trade through an apprenticeship. |
| E **Construction Equipment Operators (Operating Engineers) (M)** Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. | Bulldozer Operator; Steam Shovel Operator | 351,200 ↗<br>3,075/911 ↘<br>$39,800-$51,770 | Realistic | Trained on the job or through career and technical education programs. Should have average mechanical ability. Must be willing to work outdoors and work irregular hours. |
| E **Electricians (M)** Install, maintain and repair electrical wiring, equipment and fixtures. Ensure that work is in accordance with relevant codes. | Electrical Sign Wirer; Master Electrician; Solar Photovoltaic Electrician | 583,500 ↗<br>2,864/1,175 ↗<br>$37,720-$56,350 | Realistic | Many employers prefer a graduate of a career and technical education or apprenticeship program. Must be able to read blueprints and use tools required in electrical circuit installation and repair. Hired by contractors, utility companies, or self-employed. |
| **Electronic Home Entertainment Equip. Installers and Repairers** Repair, adjust, or install audio or television receivers, stereo systems, camcorders, video systems, or other electronic home entertainment equipment. | Electronic Musical Instrument Repairer; Home Theater Installer; Satellite Dish Installer; Wireless Internet Installer | 31,300 ↘<br>194/76 ↘<br>$28,640-$39,300 | Realistic | Technicians typically need some type of electrical or electronics education, but depending on the work they do, it could be a postsecondary non-degree award or an associate's degree. |
| **Heating and Air Conditioning Mechanics (M)** Install or repair heating, central air conditioning or refrigeration systems, including oil burners, hot-air furnace and heating stoves. | Boilermakers, Electrical Appliance Servicers, Plumbers, Sheet Metal Workers | 267,600 ↗<br>730/351 ↗<br>$37,080-$50,710 | Realistic | Employers prefer applicants with career and technical education training or apprenticeship program completion. Mechanical ability and the ability to make decisions accurately are important. |
| **Maintenance and Repair Workers, General** Perform work involving the skills of two or more maintenance occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; carpentry; repairing equipment; installing equipment; and repairing buildings, floors, or stairs. | Building Maintenance Mechanic | 1,325,100 ↘<br>2,984/980 →<br>$27,210-$39,780 | Realistic | Must have good oral communication skills, be able to prioritize tasks and work independently, and be able to lift 50 pounds. |
| **Plumbers and Pipefitters (M)** Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinklerfitters. | Fire Sprinkler Installer; Solar Thermal Installer; Sprinkler Fitter | 386,900 ↗<br>1,371/442 ↗<br>$34,370-$51,090 | Realistic | Many employers require either past experience or formal apprenticeship training. Hired by construction companies. May be self-employed. License required. |
| **Property, Real Estate, and Community Association Managers** Plan, direct, or coordinate the selling, buying, leasing, or governance activities of commercial, industrial, or residential real estate properties. Includes managers of homeowner and condominium associations, rented or leased housing units, buildings, or land (including rights-of-way). | Apartment Manager; Building Rental Manager; Leasing Property Manager | 297,000 →<br>515/198 →<br>$32,880-$55,300 | Enterprising | Employers prefer college graduates in business administration, finance, real estate or public administration. Good speaking and writing skills and ability to deal tactfully with people are essential. Experience in real estate sales helpful. |
| **Structural Iron and Steel Workers (M)** Raise, place and unite iron or steel girders, columns and other structural members to form structures or structural frameworks. | Bridge Ironworker; Precast Concrete Ironworker; Wind Turbine Erector | 58,100 ↗<br>372/178 →<br>$32,370-$46,550 | Realistic | Employers prefer applicants with formal apprenticeship training. Some may train on the job. Most work outside in all kinds of weather. |
| **Supervisors of Construction Trades Workers** Directly supervise and coordinate activities of construction or extraction workers. | Carpenter Supervisor; Quarry Boss; Rig Supervisor; Solar Panel Installation Supervisor | 545,500 ↗<br>4,047/906 →<br>$46,000-$77,320 | Enterprising | Construction trades supervisors will need experience before being hired. On-the job training is most often the type of training for this occupation. |

E **Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# ARCHITECTURE & CONSTRUCTION

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree *(continued)*** | | | | |
| E **Surveying and Mapping Technicians** Perform surveying and mapping duties, usually under the direction of an engineer or surveyor to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of maps. | Cartographic Technician; Field Map Technician; GIS Mapping Technician | 54,000 →<br>187/91 ↑<br>$33,400-$46,830 | Realistic | Most employers prefer applicants with career and technical education training; however, some are trained on the job. Must be able to visualize and understand objects, distance, sizes, and other abstract forms. Mathematical ability essential. Hired by government construction firms, engineering companies. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Architects (M)** Plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property. | Building Architect; Building Architectural Designer; Structural Architect | 197,400 ↗<br>191/98 ↑<br>$48,000-$65,520 | Artistic | Graduation from a five-year program in architecture and licensure is the minimum requirement for employment. Job availability depends on the construction industry. Must be creative, artistic, perceptive, and be able to work independently. |
| **Civil Engineers** Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems. Includes architectural, structural, traffic, ocean, and geo-technical engineers. | Bridge Engineer; Construction Engineer; Highway Engineer | 272,900 ↗<br>931/534 ↑<br>$51,510-$74,850 | Realistic | An increasing number of employers are requiring a master's degree or above. Employed by federal, state and local governments and in construction industries. Generally in or near industrial and commercial centers. Must be licensed. |
| **Construction Managers (M)** Plan, organize, direct, and coordinate through subordinate personnel activities concerned with erection, alteration, maintenance, and repair of structures, facilities, and systems such as houses, office buildings, bridges, roads, and similar structures. | Construction Coordinator; Construction Superintendent; General Contractor | 485,000 ↗<br>1,089/294 →<br>$53,980-$77,650 | Enterprising | Large construction firms prefer candidates with both construction experience and a bachelor's degree in a construction-related field. However, some managers may qualify with a high school diploma and many years experience in a construction trade. |
| **Cost Estimators (M)** Prepare cost estimates for product manufacturing, construction projects or services to aid management in bidding or determining price of product or service. | Construction Job Cost Estimator; Crating and Moving Estimator; Production Cost Estimator | 202,200 ↑<br>588/344 ↑<br>$36,690-$57,890 | Conventional | Over half work in the construction industry. Job prospects should be best for those with industry work experience and a bachelor's degree in a related field. |
| E **Surveyors (M)** Make exact measurements and determine property boundaries. Provide data relevant to shape, contour, gravitation, location, elevation, or dimension of land or land features. | Geodetic Surveyor; Land Surveyor; Mineral Surveyor | 42,400 →<br>303/140 ↗<br>$39,050-$56,460 | Realistic | Training may range from an associate's to bachelor's degree. Must be able to visualize and understand objects, distances, sizes and other abstract forms. Must be accurate and quick with mathematical calculations. |

## North Dakota Architecture & Construction Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Construction** | ❑ Building Construction Technology (NDSCS, TMCC)<br>❑ Building Trades (SBC)<br>❑ Carpentry (BSC, BJCC, CCCC, SBC, WSC)<br>❑ Concrete (SBC)<br>❑ Construction Management Technology (NDSCS)<br>❑ Electrical Tech (NDSCS, SBC, TMCC, UTTC)<br>❑ Framing (SBC)<br>❑ Heating Ventilation & Air Conditioning (BSC, CCCC, NDSCS, TMCC)<br>❑ Plumbing (NDSCS)<br>❑ Sustainable Construction (BSC) | ❑ Construction Management (NDSU) | ❑ Construction Management (NDSU) |
| **Design/Pre-Construction** | ❑ Architectural Drafting and Estimating Technology (NDSCS)<br>❑ Landscape Design and Maintenance (DCB) | ❑ Architecture (NDSU)<br>❑ Landscape Architecture (NDSU)<br>❑ Construction Engineering (NDSU) | ❑ Architecture (NDSU) |
| **Maintenance/Operations** | ❑ Mechanical Systems (NDSCS)<br>❑ Interior Design (NDSU) | ❑ Facilities Maintenance (BJCC) | |

## North Dakota Postsecondary Institutions

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **NDSU** | ND State University | www.ndsu.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu | **WSC** | Williston State College | www.willistonstate.edu |

# ARTS, A/V TECHNOLOGY & COMMUNICATION

**Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Jewelers and Precious Stone and Metal Workers** Design, fabricate, adjust, repair, or appraise jewelry, gold, silver, other precious metals, or gems. Includes diamond polishers and gem cutters, and persons who perform precision casting and modeling of molds, casting metal in molds, or setting precious and semi-precious stones for jewelry and related products. | Diamond Setter; Gemologist; Goldsmith | 32,700 ↓<br>109/22 ↓<br>$24,220-$32,460 | Realistic | Although most jewelers and precious stone and metal workers have traditionally learned their skills through long-term on-the-job training, a growing number now learn their skills at trade schools. |
| **Musicians and Singers** Play one or more musical instruments or sing. May perform on stage, for on-air broadcasting, or for sound or video recording. | Instrumentalist; Oboist; Rapper | 167,400 ↘<br>292/79 ↓<br>N/A | Artistic | There are no postsecondary education requirements for musicians or singers interested in performing. However, many performers of classical music and opera have a bachelor's degree. |
| **Photographers (M)** Photograph people, landscapes, merchandise, or other subjects, using digital or film cameras and equipment. May develop negatives or use computer software to produce finished images and prints. Includes scientific photographers, aerial photographers, and photojournalists. | Marine Photographer; Medical Photographer; Wedding Photographer | 136,300 ↘<br>240/35 ↘<br>$22,640-$33,540 | Artistic | Training ranges from a high school diploma to a bachelor's degree. Technical understanding of photography necessary. Hired by commercial art studios, newspapers, magazines, or may be self-employed. |
| **Radio and Television Announcers (M)** Speak or read from scripted materials, such as news reports or commercial messages, on radio or television. May announce artist or title of performance, identify station, or interview guests. | Game Show Host; Radio Disk Jockey; Talk Show Host | 41,300 ↓<br>327/68 ↓<br>$18,830-$30,570 | Artistic | Particular attention is given to taped auditions, appearance, style on television, and voice quality. Correct English usage is essential and knowledge of current events is important. |
| **Radio, Cellular, and Tower Equipment Installers and Repairers** Repair, install or maintain mobile or stationary radio transmitting, broadcasting, and receiving equipment, and two-way radio communications systems used in cellular telecommunications, mobile broadband, ship-to-shore, aircraft-to-ground communications, and radio equipment. | Radio Frequency Technician; Radio Mechanic; Two-Way Radio Technician | 16,400 ↘<br>79/24 ↗<br>$38,850-$49,250 | Realistic<br>$ | To become proficient, most line installers and repairers require technical instruction and moderate on-the-job training. Apprenticeships are common. Asssociate's degree may be preferred. |
| **Telecommunications Equipment Installers and Repairers (M)** Install, set-up, rearrange, or remove switching, distribution, routing, and dialing equipment used in offices. Service or repair telephone, cable television, Internet, and other communications equipment on customers' property. May install communications equipment or communications wiring in buildings. | Fiber Optic Central Office Installer; Private Branch Exchange (PBX) Installer and Repairer | 217,200 ↘<br>444/80 ↘<br>$48,580-$62,910 | Realistic<br>$ | Telecom technicians typically need some postsecondary education in electronics, telecommunications, or computers. Technical programs with courses in basic electronics, telecommunications, and computer science offered in community colleges and technical schools may be particularly helpful. Industry certification is required for some positions. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Art Directors** Formulate design concepts and presentation approaches for visual communications media, such as print, broadcasting, and advertising. Direct workers engaged in art work or layout design. | Magazine Designer | 74,800 ↘<br>84/20 ↓<br>$38,870-$57,690 | Artistic<br>$ | Art directors need at least a bachelor's degree in an art or design subject and previous work experience. They may have worked as graphic designers, illustrators, copy editors, or photographers, or in another art or design occupation before becoming art directors. |
| **Camera Operators, Television, Video, and Motion Picture** Operate television, video, or motion picture camera to record images or scenes for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. | Cinematographer; News Videographer | 21,400 ↘<br>93/7 ↓<br>$19,310-$32,850 | Realistic | Film and video editors and camera operators typically need a bachelor's degree in a field related to film or broadcasting. |
| **Graphic Designers (M)** Design or create graphics to meet a client's specific commercial or promotional needs, such as packaging, displays or logos. | Catalogue Illustrator; Graphic Artist | 259,500 ↘<br>749/255 ↘<br>$26,080-$35,370 | Artistic | Most employers prefer training in art illustration and design. Computer graphics training is essential. Further education may increase your advancement options in this field. |
| **Multimedia Artists and Animators** Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials. | Special Effects Artist; 3D Animator | 68,900 ↘<br>67/19 ↘<br>$33,870-$53,060 | Artistic<br>$ | Most multimedia artists and animators need a bachelor's degree in computer graphics, art, or a related field to develop a strong portfolio of work and learn the strong technical skills that many employers prefer. |
| **Proofreaders and Copy Markers** Read transcript or proof type setup to detect and mark for correction any grammatical, typographical, or compositional errors. | Braille Proofreader; Copy Reader; Editorial Assistant | 13,200 ↓<br>41/8 ↓<br>N/A | Conventional | A college degree is preferred and on-the-job training will be provided. Attention to detail and spelling is essential. |
| **Writers and Authors** Writers and authors develop written content for advertisements, books, magazines, movie and television scripts, songs, and online publications. | Advertising Copy Writer; Playwright; Television Writer | 129,100 ↘<br>297/77 ↘<br>$27,430-$55,330 | Enterprising<br>$ | A bachelor's degree is generally required for a full-time position as a writer or author. Excellent writing skills are essential. Proficiency with computers is necessary while working on assignments. |

E Energy Occupation  Bright Outlook  High Skill  $ High Wage

# ARTS, A/V TECHNOLOGY & COMMUNICATION

**North Dakota Arts, A/V Technology & Communications Related Postsecondary Programs**

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Audio and Video Technology And Film** | ❑ Digital Audio Production (BSC)<br>❑ Multimedia Art (UTTC)<br>❑ Theatre Arts Technical (BSC) | ❑ Multi-Media Studies (MiSU)<br>❑ New Media & Web Design (NDSU)<br>❑ Theatre Arts – Design & Technical (NDSU) | |
| **Journalism and Broadcasting** | ❑ Communications (WSC)<br>❑ English (BSC, DCB, TMCC, WSC)<br>❑ Journalism (BSC)<br>❑ Mass Communications (BSC) | ❑ Broadcasting (MiSU)<br>❑ Communication (DSU, MaSU, MiSU, UJ, UND)<br>❑ English (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Journalism/Professional Writing (DSU, NDSU, VCSU)<br>❑ Mass Communications (UM) | ❑ Communication/Public Discourse (UND)<br>❑ Mass Communications (NDSU) |
| **Performing Arts** | ❑ Music (BSC, NDSCS, TMCC, WSC)<br>❑ Music Composition (VCSU)<br>❑ Theatre Arts (BSC) | ❑ Music (DSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Theatre Arts (DSU, MiSU, NDSU, UJ, UND)<br>❑ Art Entrepreneurship (DSU)<br>❑ Arts Administration (MiSU) | ❑ Music (NDSU, UND)<br>❑ Theatre Arts (UND) |
| **Printing Technology** | | ❑ Art/Printmaking and Drawing (MiSU) | |
| **Telecommunications** | ❑ Electronics and Telecommunications Technology (BSC) | | |
| **Visual Arts** | ❑ Art & Art Marketing (DCB, TMCC, UTTC)<br>❑ Digital Design (VCSU)<br>❑ Fine Art (CCCC)<br>❑ Graphic Design & Communications (BSC, CCCC, RC)<br>❑ Graphic Art (UTTC)<br>❑ Photography (DCB)<br>❑ Visual Arts (BSC) | ❑ Art/Art Studies (DSU, MiSU, NDSU, UJ, UND, VCSU)<br>❑ Interior Design (NDSU)<br>❑ Graphic Design & Communications (MiSU, UND)<br>❑ Visual Arts (UND) | |

**North Dakota Postsecondary Institutions**

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **RC** | Rasmussen College - Fargo | www.rasmussen.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **UJ** | University of Jamestown | www.uj.edu |
| **MaSU** | Mayville State College | www.mayvillestate.edu | **UM** | University of Mary | www.umary.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **UND** | University of North Dakota | www.und.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu | **VCSU** | Valley City State University | www.vcsu.edu |
| **NDSU** | ND State University | www.ndsu.edu | **WSC** | Williston State College | www.willistonstate.edu |

## NOTES

# BUSINESS MANAGEMENT & ADMINISTRATION

**Planning, organizing, directing and evaluating business functions essential to efficient and productive business operations.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Bill and Account Collectors** Locate and notify customers of delinquent accounts by mail, telephone, or personal visit to solicit payment. Duties include receiving payment and posting amount to customer's account; preparing statements to credit department if customer fails to respond; initiating repossession proceedings or service disconnection; and keeping records of collection and status of accounts. | Collection Agent; Debt Collector; Repossessor | 397,400 →<br>899/393 →<br>$21,790-$31,480 | Conventional | A career and technical education degree in financial management may be preferred by some employers, others train on the job. Above average telephone communication essential. This job demands persistence and aggressiveness. |
| **Bookkeeping, Accounting, and Auditing Clerks** Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. | Accounts Receivable Clerk; Bookkeeper; Mortgage Accounting Clerk | 1,799,800 →<br>9,281/2,218 →<br>$26,390-$36,580 | Conventional | Some employers require formal career and technical education training. Knowledge of business arithmetic and bookkeeping are necessary. Employers may train their personnel on the job. |
| **Claims Adjusters, Examiners, and Investigators** Review settled claims to determine that payments and settlements are made in accordance with company practices and procedures. Confer with legal counsel on claims requiring litigation. May also settle insurance claims. | Fire Claims Adjuster; Health Insurance Adjuster; Property and Casualty Insurance Claims Examiner | 297,600 ↘<br>533/180 →<br>$30,970-$48,470 | Conventional | A bachelor's degree is preferred and further training provided on the job by the company that hires them. A background in business and knowledge of law may be helpful. Ability to work with people essential. |
| **Customer Service Representatives** Interact with customers to provide information in response to inquiries about products and services and to handle and resolve complaints. | Customer Complaint Clerk; Passenger Relations Representative; Warranty Clerk | 2,362,800 →<br>4,799/2,006 →<br>$24,790-$32,070 | Enterprising | Hiring requirements s vary from business to business, however a high school diploma is the most common educational requirement. Good interpersonal skills are essential. |
| **Legal Secretaries** Perform secretarial duties using legal terminology, procedures, and documents. Prepare legal papers and correspondence, such as summonses, complaints, motions, and subpoenas. May also assist with legal research. | Law Secretary; Legal Administrative Assistant | 223,100 ↓<br>441/55 ↘<br>$28,950-$37,020 | Conventional | Most employers require 60-70 words per minute typing and accuracy in transcription. Knowledge of legal terminology necessary. Computer experience is essential. |
| **Medical Secretaries** Perform secretarial duties using specific knowledge of medical terminology and hospital, clinic, or laboratory procedures. Duties may include scheduling appointments, billing patients, and compiling and recording medical charts, reports, and correspondence. | Dental Secretary; Psychiatric Secretary | 525,600 ↑<br>559/237 ↑<br>$25,520-$31,340 | Conventional | Employers require an accurate typing speed of 50-80 words per minute and familiarity with medical terminology. Good spelling, punctuation, grammar, and vocabulary usage necessary. |
| **Office Clerks, General (M)** Knowledge of office systems and procedures is required. Duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, and office machine operation. | Administrative Clerk; Office Assistant; Real Estate Clerk | 2,983,500 ↘<br>10,749/3,009 ↘<br>$18,030-$25,810 | Conventional | A high school diploma is usually required. Employers require typing, word processing, and other general office skills. |
| **Payroll and Timekeeping Clerks (M)** Compile and record employee time and payroll data. May compute employees' time worked, production, and commission. May compute and post wages and deductions, or prepare paychecks. | Time and Attendance Clerk; Timekeeper | 179,500 →<br>480/159 →<br>$32,240-$39,130 | Conventional | Clerks need a high school diploma, and usually learn some of their skills on the job. They must have basic math and computer skills, including knowledge of spreadsheets and bookkeeping software. |
| **Procurement Clerks (M)** Compile information and records to draw up purchase orders for procurement of materials and services. | Procurement Assistant; Purchasing Clerk | 72,200 ↘<br>185/82 ↘<br>$26,320-$36,850 | Conventional | A high school diploma is needed by bookkeeping, accounting and acuditing clerks.Previous experience in the procurement process and laws are preferred. |
| **Receptionists and Information Clerks** Answer inquiries and provide information to the general public, customers, visitors, and other interested parties regarding activities conducted at establishment and location of departments, offices, and employees within the organization. | Appointment Clerk; Front Desk Receptionist; Land Leasing Information Clerk | 1,006,000 →<br>3,006/1,174 →<br>$19,630-$26,530 | Conventional | Employers may prefer career and technical education training. Applicants must have knowledge of general office procedures. Must enjoy working with people and have a desire to be helpful. Neat appearance essential. |
| **Retail Salespersons** Sell merchandise, such as furniture, motor vehicles, appliances, or apparel to consumers. | Used Car Salesperson; Women's Apparel Salesperson | 4,487,000 →<br>12,974/6,317 →<br>$17,950-$29,220 | Enterprising | Must have an interest in people, and enjoy sales work. Many sales people work part-time. Postsecondary training may improve chances for advancement into managerial positions. |
| **Secretaries and Administrative Assistants** Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers. | Office Secretary; Personal Secretary; School Secretary | 2,324,400 →<br>4,527/1,270 ↗<br>$25,690-$35,270 | Conventional | Training ranges from high school office skill training to one or two years postsecondary training. Temporary placement agencies may provide additional training. |
| **Supervisors of Office/Administrative Support Workers** Directly supervise and coordinate the activities of clerical and administrative support workers. | Clerical Supervisor; Payroll Supervisor; Teller Supervisor | 1,418,100 →<br>3,020/1,160 →<br>$33,330-$52,130 | Enterprising | A bachelor's degree is preferred by some employers and others require some career and technical education training. Experience and familiarity with the organization activities are necessary. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# BUSINESS MANAGEMENT & ADMINISTRATION

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Word Processors and Typists** Use word processor, computer or typewriter to type letters, reports, forms, or other material from rough draft, corrected copy, or voice recording. May perform other clerical duties as assigned. | Clerk Typist; Transcription Typist | 104,400 ↓<br>182/7 ↓<br>$20,970-$28,570 | Conventional | High school graduates with basic office and computer skills usually qualify for entry-level positions. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Accountants and Auditors (M)** Examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Install or advise on systems of recording costs or other financial and budgetary data. | Certified Public Accountant; Field Auditor; Internal Auditor | 1,275,400 →<br>3,801/1,855 ↗<br>$38,430-$56,230 | Conventional | A bachelor's degree is required and experience is often preferred. Good communication skills are essential as well as computer skills. Many accountants take the certified public accountant (CPA) exam. |
| **Administrative Services Managers (M)** Plan, direct, or coordinate one or more administrative services of an organization, such as records and information management, mail distribution, facilities planning and maintenance, custodial operations, and other office support services. | Facilities Manager; Records and Information Manager; Records Management Director | 280,800 →<br>671/230 ↗<br>$46,520-$82,070 | Enterprising | Technical training and experience required. Management, supervisory, and planning ability essential. Knowledge of spelling, grammar and punctuation, and good written and verbal communication skills necessary. |
| **Management Analysts (M)** Conduct organizational studies and evaluations, design systems and procedures, conduct work simplification and measurement studies, and prepare operations and procedures manuals to assist management in operating more efficiently and effectively. | Business Management Analyst; Business Process Consultant; Industrial Analyst | 718,700 ↗<br>675/245 ↗<br>$43,170-$64,950 | Investigative | Demand for the services of these workers will grow as organizations continue to seek ways to improve efficiency and control costs. |

**E** Energy Occupation  Bright Outlook  High Skill  **$** High Wage

## North Dakota Business Management & Administration Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Administrative Support** | ❑ Administrative Assistant (BSC, DCB, FBCC, LRSC, UTTC, WSC)<br>❑ Business/Office Technology (CCCC, SBC, UTTC)<br>❑ Office Administration (BJCC, DSU, WSC)<br>❑ Reception Service (DCB) | | |
| **Business Information Management** | ❑ Information Technology Management (DCB, FBCC, RC)<br>❑ Information Processing Specialist (BSC)<br>❑ Computerized Office Management (DCB)<br>❑ Management Information Systems (NDSCS) | ❑ Information Technology Management (RC, UJ, UM)<br>❑ Business Process Management (VCSU)<br>❑ Computer Technology Management (DSU)<br>❑ Management Information Systems (MiSU, NDSU) | |
| **General Management** | ❑ Business Administration (BSC, CCCC, DCB, FBCC, LRSC, NDSCS, RC, SBC, TBC, TMCC, UTTC, WSC)<br>❑ Business Management (BSC, MaSU, NDSCS, RC, UTTC, WSC)<br>❑ Management Entrepreneur (BSC)<br>❑ International Business (WSC)<br>❑ Small Business Management (DCB, UTTC)<br>❑ Entrepreneurship (SBC) | ❑ Business Administration (DSU, MaSU, NDSU, SBC, TBC, UTTC, UJ, UM, VCSU)<br>❑ Applied Management (MiSU)<br>❑ International Business (MiSU, UJ)<br>❑ Entrepreneurship (RC, UND)<br>❑ Management (MiSU, NDSU, RC, UND)<br>❑ Management/Business Communication (NDSU, UJ) | ❑ Business Administration (NDSU, UM, UND)<br>❑ Management (MiSU)<br>❑ Managerial Logistics (NDSU)<br>❑ Project Management (UM) |
| **Human Resources Management** | ❑ Human Resources Management (DSU)<br>❑ HR and Organizational Leadership (RC) | ❑ Human Resource Mgmt. (DSU, RC, UJ, UND, VCSU)<br>❑ HR and Organizational Leadership (RC) | ❑ Human Resource Management (UM) |
| **Operations Management** | | ❑ Operations & Supply Chain Management (UND)<br>❑ Business Systems Analysis (RC) | |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MaSU** | Mayville State College | www.mayvillestate.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College - Fargo | www.rasmussen.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TBC** | Trinity Bible College | www.trinitybiblecollege.edu |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

# Chelsey Flick • Harvey High School

Chelsey Flick was very involved in FFA, serving as Chapter Vice President and NE Region Vice-President. "FFA provided multiple opportunities for involvement, and the benefits I gained include leadership skills, public speaking opportunities and making connections with people." Developing the ability to network with others has provided bigger opportunities beyond the FFA organization.

When Chelsey graduated from high school, she didn't know which college major to pursue or the type of career she wanted. She wanted something that was unique. During college orientation at the University of Mary, she heard about a fellow student who went on to work for CMT (Country Music Television) and was intrigued at the possibility of working in the country music field.

After two years at the University of Mary, she transferred to Belmont University in Nashville. She was able to continue with a Business Administration major and added a Music Business emphasis. While at Belmont, she had multiple internships, including one with BBR Music Group. The internships gave her a practical understanding of the music industry that enhanced the classroom learning.

BBR Music Group is based in Nashville and has three labels including Broken Bow, Red Bow and Stoney Creek. Several artists record for each of the three labels. Artists currently recording for BBR Music Group include Jason Aldean, Thompson Square, Dustin Lynch, Randy Houser, Parmalee, Craig Campbell, Trace Adkins, Joe Nichols, along with other emerging artists.

Chelsey stayed in contact with BBR Music Group personnel and the chance for employment became available about 18 months after college.

Much of Chelsey's work time is spent in meetings. She is manager of National Syndication and Radio Strategy. With National Syndication, Chelsey works directly with her artists and the different nationally syndicated programming options available for radio stations. The programs vary in length and include nationally known hosts, access to country music artists, and a wide variety of content. The Radio Strategy initiative includes the marketing of BBR Music Group's different artists, through artist feature stories, web streaming services, and other avenues. Chelsey says "The staff at BBR Music Group work behind-the-scenes to find every opportunity to help expose our artists and their music in order for them to realize their full potential."

For those high school students getting ready for college and career, Chelsey states, "There are no limits on your future. Chase after whatever it is you're wanting to chase, and go after it 100%."

## NOTES

# EDUCATION & TRAINING

**Planning, managing and providing education and training services, and related learning support services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Self-Enrichment Education Teachers** Teach or instruct courses other than those that normally lead to an occupational objective or degree. Courses may include self-improvement, nonvocational, and nonacademic subjects. Teaching may or may not take place in a traditional educational institution. | Citizenship Teacher; Horseback Riding Instructor; Sailing Instructor | 316,200 →<br>483/133 →<br>$17,500-$25,770 | Social | Job opportunities for teachers will vary from good to excellent. Most job openings will be attributable to the expected retirement of a large number of teachers. |
| **Teacher Assistants** Perform duties that are instructional in nature or deliver direct services to students or parents. Serve in a position for which a teacher has ultimate responsibility for the design and implementation of educational programs and services. | Instructional Aide; Special Education Classroom Aide | 1,223,400 ↘<br>4,027/1,312 →<br>$23,950-$30,250 | Social | Some employers prefer applicants with formal training; however, others train their workers on the job. Emphasis is placed on experience in working with young people. May be part-time workers. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Career/Technical Education Teachers, Secondary School** Teach occupational, career and technical, or vocational subjects at the secondary school level in public or private schools. | High School Auto Repair Teacher; High School Vocational Education Teacher | 85,400 ↘<br>544/202 →<br>$38,240-$49,740 | Social | Most have a bachelor's degree. Knowledge, skills and work experience may be required to teach at a postsecondary, technical, or career and technical education institution. |
| **Child, Family, and School Social Workers** Provide assistance to improve the social and psychological functioning of children and their families. May assist parents, arrange adoptions, and find foster homes. In schools, they address concerns such as teenage pregnancy, misbehavior, and truancy. | Certified Children, Youth, and Family Social Worker; Child Abuse Worker; Foster Care worker | 285,700 →<br>486/177 →<br>$36,680-$47,560 | Social | Employers require a bachelor's degree and an increasing number are requiring a graduate degree with a specialization in criminal justice, psychology, geriatrics, pediatrics, etc. Work in government, schools, private agencies. |
| **Directors, Religious Activities and Education** Plan, direct, or coordinate programs designed to promote the religious education or activities of a denominational group. May provide counseling and guidance relative to marital, health, financial, and religious problems. | Religious Education Director; Youth Ministry Director | 134,200 ↘<br>278/95 ↓<br>$38,210-$56,040 | Enterprising | Candidates need a combination of education and related work experience. Although training and development managers need a bachelor's degree for many positions, some jobs require a master's degree. |
| **Education Administrators, Elementary and Secondary Schoo**l Plan, direct, or coordinate the academic, administrative, or auxiliary activities of public or private elementary or secondary level schools. | Elementary School Principal; High School Principal; Middle School Principal | 231,500 ↘<br>524/193 →<br>$61,940-$84,710 | Enterprising | Master's or doctoral degree required for many positions, especially at the college level. Teaching experience, leadership, organizational and communication skills important. Not an entry level position. |
| **Educational, Guidance, School, and Vocational Counselors** Counsel individuals and provide group educational and vocational guidance services. | Career Counselor; Career Technical Counselor; Student Development Advisor | 262,300 →<br>692/231 →<br>$39,200-$54,540 | Social | Must have a master's degree in counseling and guidance and be certified by the state of North Dakota to work in secondary schools in North Dakota. May work in employment agencies or private practice. |
| **Elementary School Teachers, Except Special Education** Teach students basic academic, social, and other formative skills in public or private schools at the elementary level. | Elementary School Band Director; 4th Grade Math Teacher | 1,361,200 →<br>5,073/2,006 ↗<br>$36,250-$47,710 | Social | A degree in elementary education is required. Must be certified by the state. Positions may be part-time in rural North Dakota. For kindergarten teaching, a minor in early childhood education is required. |
| **Graduate Teaching Assistants** Provide assistance to postsecondary faculty by teaching lower level courses. May also develop teaching materials, give examinations, and grade student work. Graduate teaching assistants must be enrolled in a graduate school program. | Graduate Student Instructor; Teaching Fellow | 150,300 →<br>1,914/410 ↘<br>$33,320-$39,660 | Social | Educational requirements, which vary by school district and position, range from a high school diploma to an associate's degree. |
| **Instructional Coordinators** Develop instructional material, coordinate educational content, and incorporate current technology in specialized fields that provide guidelines to educators and instructors for developing curricula and conducting courses. Includes educational consultants and specialists, and instructional material directors. | Curriculum and Assessment Director; Curriculum Specialist; Special Education Curriculum Specialist | 147,700 →<br>221/45 →<br>$39,530-$63,860 | Social | Instructional coordinators need a master's degree and related work experience, such as teaching or school administration. Coordinators in public schools may be required to have a state-issued license. |
| **Nursing Instructors and Teachers, Postsecondary** Demonstrate and teach patient care in classroom and clinical units to nursing students. Includes both teachers primarily engaged in teaching and those who do a combination of teaching and research. | Advanced Nursing Professor; Clinical Nursing Professor; Registered Nursing Professor | 67,800 ↑<br>152/76 ↑<br>$49,730-$72,140 | Social | Mostpostsecondary teachers must have a Ph.D. However, a master's degree in nursing may suffice for teachers at community colleges. Work experience may be important for getting a postsecondary teaching job. |
| **Special Education Teachers, Kindergarten and Elementary School** Teach elementary school subjects to educationally and physically handicapped students. Includes teachers who specialize and work with audibly and visually handicapped students and those who teach basic academic and life processes skills to the mentally impaired. | Severe Emotional Disorders Elementary School Teacher; Special Education Kindergarten Teacher | 194,600 ↘<br>730/199 →<br>$39,840-$51,280 | Social | Must hold a special education credential in a chosen field such as learning disabilities, mental retardation, visually impaired, etc., as well as teacher's certificate. Rural positions may require traveling to several schools. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# EDUCATION & TRAINING

**North Dakota Education & Training Related Postsecondary Programs**

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Administration & Administration Support** | | ❑ Early Childhood Education, Business Admin (MiSU) | ❑ Educational Leadership (NDSU, UND)<br>❑ Elementary/Secondary Administration (UM, UND)<br>❑ Curriculum, Instruction, and Assessment (UJ, UM, UND)<br>❑ Higher Education (UND) |
| **Professional Support Services** | ❑ American Sign Language Studies (LRSC)<br>❑ Speech Language Pathology Assistant (BSC, LRSC, WSC)<br>❑ Communication Disorders (WSC) | ❑ Communication Disorders (MiSU, UM, UND) | ❑ School Psychology (MiSU)<br>❑ Counseling, Guidance, Student Affairs (NDSU, UM, UND)<br>❑ Communication Disorders (MiSU, UND)<br>❑ Speech Language Pathology Assistant (MiSU, NDSU)<br>❑ Library and Information Technologies (VCSU) |
| **Teaching/Training** | ❑ Early Childhood Education (BSC, CCCC, DCB, FBCC, LRSC, MaSU, NDSCS, RC, SBC, UTTC, WSC)<br>❑ Paraprofessional Educator (DCB)<br>❑ Education, Elementary, Transfer (BSC, DCB, FBCC, UTTC)<br>❑ Education, Secondary, Transfer (BSC, DCB, NDSCS, WSC)<br>❑ Health, Physical Education, and Recreation (CCCC, NDSCS)<br>❑ Special Education Transfer (DCB)<br>❑ Education, Middle School, Transfer (WSC) | ❑ Education, Elementary (DSU, FBCC, MaSU, MiSU, NDSU, SCB, UJ, UM, UND, VCSU)<br>❑ Education, Secondary (DSU, MaSU, MiSU, NDSU, SBC, TMCC, UJ, UM, UND, VCSU)<br>❑ Early Childhood Education (MaSU, MiSU, RC, SBC, TMCC, UM, UND)<br>❑ Education, Middle Level (UND)<br>❑ Special Education (MiSU, UM) | ❑ Special Education/Early Childhood/Reading (MiSU, UM, UND)<br>❑ Education (MiSU, NDSU, UJ, UND, VCSU) |

**North Dakota Postsecondary Institutions Offering Education & Training Programs**

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **RC** | Rasmussen College - Fargo | www.rasmussen.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **TBC** | Trinity Bible College | www.trinitybiblecollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **UJ** | University of Jamestown | www.uj.edu |
| **MaSU** | Mayville State College | www.mayvillestate.edu | **UM** | University of Mary | www.umary.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **UND** | University of North Dakota | www.und.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu | **VCSU** | Valley City State University | www.vcsu.edu |
| **NDSU** | ND State University | www.ndsu.edu | **WSC** | Williston State College | www.willistonstate.edu |

## Allyse Hoge • Northwood High School

**Allyse** credits her interest in music to teacher Erin Wirtz. "She had a clear passion for music and was eager to share that interest with the class. She was a positive role model and treated us with respect." The music class took occasional trips to NDSU where she was able to play with the band and sing with the choir. The NDSU students were very welcoming and a strong influence on her choice for college. She graduated from NDSU with a Bachelors of Music in Music Education and is currently working on her Masters in Music Education.

Through FCCLA, she learned how to work with many different people, create and polish presentations, develop public speaking skills and understand the importance of teamwork. High school was easy for Allyse and when she started at NDSU, she struggled with some of the general and more difficult courses. Her advice for current high school students is to develop their study skills in preparation for the transition to college.

Shaping the future of North Dakota as a teacher is exciting for Allyse. She teaches several choir classes each day at Schroeder Middle School in Grand Forks and also provides individual student lessons. Middle school students are very unique and there can be daily challenges to classroom management. She sees small successes every day, and the greater reward is evident when each piece of music is at its best for concert performances and the spring musical. "Teaching is essentially giving a series of presentations each day, so learning how to do that in FCCLA was a huge benefit for me."

"Be involved as you can – join clubs, meet people and step up to be a leader in those organizations. The people you meet will be great friends and resources as you plan for your career."

# FINANCE

**Planning, services for financial and investment planning, banking, insurance, and business financial management.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Bank Tellers (M)** Receive and pay out money for financial institutions. Keep records of money and negotiable instruments involved in various transactions. | Foreign Exchange Clerk; Money Order Clerk; Securities Teller | 545,300 ↘<br>2,092/1,166 ↘<br>$21,520-$26,940 | Conventional | Chances of employment may be enhanced through career and technical education training and on-the-job training. |
| **Brokerage Clerks** Perform duties related to the purchase, sale or holding of securities. Duties include writing orders for purchases or sales, computing transfer taxes, verifying transactions, accepting and delivering securities, tracking price fluctuations, computing equity, distributing dividends, and keeping daily records of transactions. | Commodities Clerk; Dividend Clerk | 61,900 ↘<br>44/13 ↘<br>$36,710-$48,300 | Conventional | Most clerks need a high school diploma, and they usually learn some of their skills on the job. They must have basic math and computer skills, including knowledge of financial planning and management. |
| **Title Examiners, Abstractors, and Searchers** Search real estate records, examine titles, or summarize pertinent legal or insurance documents or details for a variety of purposes. May compile lists of mortgages, contracts, and other instruments pertaining to titles by searching records for law firms, real estate agencies, or title insurance companies. | Escrow Officer; Lien Searcher; Title Officer | 67,900 ↘<br>352/108 →<br>$31,530-$44,020 | Conventional | Title and abstract examiners are trained on the job by senior examiners. Experience in property transactions and research is preferred. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Credit Analysts** Analyze credit data and financial statements of individuals or firms to determine the degree of risk involved in extending credit or lending money. Prepare reports with credit information for use in decision making. | Credit Assessment Analyst; Credit Risk Analyst | 61,800 →<br>129/62 ↗<br>$33,730-$49,580 | Conventional | Financial analysts typically must have a bachelor's degree, but a master's degree is often required for advanced positions. |
| **Financial Examiners** Enforce or ensure compliance with laws and regulations governing financial and securities institutions and financial and real estate transactions. May examine, verify, or authenticate records. | Bank Examiner; Financial Compliance Examiner; Home Mortgage Disclosure Act Specialist | 29,200 ↘<br>93/32 ↘<br>$52,320-$77,220 | Enterprising | Financial examiners typically need a bachelor's degree that includes some coursework in accounting. Entry-level examiners are trained on the job by senior examiners |
| **Financial Managers (M)** Plan, direct, or coordinate accounting, investing, banking, insurance, securities, and other financial activities of a branch, office, or department of an establishment. | Comptroller; Financial Director | 532,100 ↘<br>1,190/428 ↗<br>$66,930-$104,810 | Conventional | College graduate in business or economics usually required. Good communication skills, ability to analyze information, and work independently is essential. |
| **Loan Officers** Evaluate, authorize, or recommend approval of commercial, real estate, or credit loans. Advise borrowers on financial status and payment methods. Includes mortgage loan officers and agents, collection analysts, loan servicing officers, and loan underwriters. | Commercial Lender; Loan Reviewer; Real Estate Loan Officer | 296,900 ↘<br>1,040/354 →<br>$41,300-$66,550 | Conventional | College degree in business, finance or accounting and economics background preferred. Must have good judgment and communications skills, and be able to analyze detailed information. |
| **Sales Agents, Securities** Buy and sell stocks and bonds based on customers' orders. Give advice and furnish client with information regarding possible purchases, market conditions, and prospects. | Investment Banker; Securities Trader; Stock Broker | 354,600 →<br>466/168 →<br>$31,180-$90,640 | Enterprising | A college degree is increasing in importance. The ability to motivate people and work independently is essential. Must pass an examination for state license. |

## North Dakota Finance Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Accounting** | ❑ Accounting (BSC, CCCC, DCB, DSU, LRSC, RC, TMCC, WSC)<br>❑ Information Management-Accounting (DCB) | ❑ Accounting (DSU, MiSU, NDSU, RC, UJ, UM, UND, VCSU)<br>❑ Managerial Finance & Accounting (UND) | ❑ Accountancy (NDSU, UND) |
| **Banking Services** | ❑ Bookkeeping (DCB)<br>❑ Economics (BSC, DCB, WSC) | ❑ Banking & Finance (UM, UND)<br>❑ Economics (MiSU, NDSU, UND) | ❑ Applied Economics (NDSU, UND) |
| **Business Finance** | ❑ Finance (DCB, WSC) | ❑ Finance (DSU, MiSU, NDSU, RC, VCSU) | |
| **Insurance** | ❑ Accounting (BSC, CCCC, DCB, DSU, LRSC, RC, TMCC, WSC)<br>❑ Business Management/Business Technology (NDSCS)<br>❑ Marketing (LRSC, RC, WSC) | ❑ Marketing (MiSU, NDSU, RC, UM, UND) | |
| **Securities & Investments** | ❑ Certified Financial Planner (DSU) | ❑ Financial Planning and Wealth Management (UJ)<br>❑ Investments (UND) | |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College - Fargo | www.rasmussen.edu |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

# GOVERNMENT & PUBLIC ADMINISTRATION

**Planning and performing government functions at the local, state and federal levels, including governance, national security, foreign service, planning, revenue and taxation, and regulations.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Eligibility Interviewers, Government Programs** Determine eligibility of persons applying to receive assistance from government programs and agency resources, such as welfare, unemployment benefits, social security, and public housing. | Medical Interviewer; Public Housing Interviewer; Unemployment Benefits Claims Taker | 138,100 →<br>440/153 →<br>$34,040-$41,790 | Social | Requires good customer service and organizational skills. North Dakota state government openings require a Bachelor's degree and related experience. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Compliance Officers** Examine, evaluate, and investigate eligibility for or conformity with laws and regulations governing contract compliance of licenses and permits, and perform other compliance and enforcement inspection and analysis activities not classified elsewhere. | Driver's License Examiner; Environmental Compliance Inspector; Equal Employment Opportunity Officer | 239,800 ↘<br>1,122/327 →<br>$35,340-$56,930 | Conventional | Many require a college degree in addition to experience and successful scores on an examination. Master's degree is becoming necessary to compete for jobs. Hired by federal, state and local government. Not an entry level position. |
| **Emergency Management Directors** Plan and direct disaster response or crisis management activities, provide disaster preparedness training, and prepare emergency plans and procedures for natural (e.g., hurricanes, floods, earthquakes), wartime, or technological (e.g., nuclear power plant emergencies or hazardous materials spills) disasters or hostage situations. | Disaster Response Director; Emergency Preparedness Coordinator; Public Safety Director | 9,900 ↘<br>81/22 →<br>$35,500-$53,170 | Social | Emergency management directors typically need a bachelor's degree, as well as multiple years of work experience in emergency response, disaster planning, or public administration. |
| **Tax Examiners and Collectors, and Revenue Agents** Determine tax liability or collect taxes from individuals or business firms according to prescribed laws and regulations. | Internal Revenue Service Agent; Revenue Collector; Tax Investigator | 69,500 ↓<br>85/32 ↘<br>$39,890-$65,750 | Conventional | Most tax examiners and collectors, and revenue agents need a bachelor's degree in accounting or a related field. The level of education and experience required varies by employer. |

## North Dakota Government & Public Administration Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Foreign Service** | ❑ Foreign Language (BSC)<br>❑ Spanish (WSC) | ❑ Arabic (MiSU)<br>❑ Chinese Studies (UND)<br>❑ French (NDSU, UJ, UND)<br>❑ German (MiSU, UJ, UND)<br>❑ International Studies (DSU, NDSU, UND)<br>❑ Norwegian (UND)<br>❑ Spanish (DSU, MiSU, NDSU, UJ, UM, UND, VCSU) | ❑ Linguistics (UND) |
| **Governance** | ❑ Dakota Studies (CCCC)<br>❑ History (BSC, DCB, TMCC, WSC)<br>❑ Native American Studies (FBCC, SBC, TMCC)<br>❑ Political Science (BSC, TMCC, WSC)<br>❑ Native American Workforce Leadership/Tribal Management (UTTC) | ❑ Government and Political Philosophy (UM)<br>❑ History (DSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Native American Studies (FBCC, UND)<br>❑ Political Science (NDSU, UJ, UND)<br>❑ Public Administration (UND) | ❑ Public Administration (UND) |
| **National Security** | ❑ Military Science (BSC) | ❑ Aeronautics/Unmanned Aircraft Systems Operations (UND)<br>❑ ROTC (NDSU, UND) | |
| **Planning** | ❑ Transportation and Urban Systems (NDSU)<br>❑ Native Community Development (SBC)<br>❑ Tribal Environmental Science (UTTC)<br>❑ Economics (BSC, DCB, WCS) | ❑ Behavioral Statistics (NDSU)<br>❑ Economics (MiSU, NDSU, UND) | ❑ Applied Economics (NDSU, UND)<br>❑ Transportation and Urban Systems (NDSU) |
| **Public Management & Administration** | ❑ Nonprofit Leadership (UND) | ❑ Public Policy (UM) | |
| **Regulation** | | ❑ Public Administration (UND)<br>❑ Public Policy (UM) | |
| **Revenue & Taxation** | ❑ Accounting (BSC, CCCC, DCB, DSU, LRSC, RC, TMCC, WSC) | ❑ Accounting (DSU, MiSU, NDSU, RC, UJ, UM, UND, VCSU)<br>❑ Public Administration (UND) | ❑ Accountancy (NDSU, UND)<br>❑ Public Administration (UND) |

## North Dakota Postsecondary Institutions

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **TBC** | Trinity Bible College | www.trinitybiblecollege.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu | **UJ** | University of Jamestown | www.uj.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **UM** | University of Mary | www.umary.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **UND** | University of North Dakota | www.und.edu |
| **NDSU** | ND State University | www.ndsu.edu | **VCSU** | Valley City State University | www.vcsu.edu |
| **RC** | Rasmussen College - Fargo | www.rasmussen.edu | **WSC** | Williston State College | www.willistonstate.edu |

# HEALTH SCIENCE

**Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Cardiovascular Technologists (M)** Conducts tests on pulmonary and/or cardiovascular systems of patients for diagnostic purposes. May conduct or assist in electrocardiograms and cardiac catheterizations. | Cardiac Catheterization Technologist; Echocardiographer; EKG Technician | 51,600 ↑<br>72/36 ↑<br>$26,750-$42,670 | Realistic | Employers favor those who have had formal training. Most work in hospital cardiology departments, while some worked in cardiologists' offices, cardiac rehabilitation centers, or health maintenance organizations. Must like to work with people. |
| **Community Health Workers** Assist individuals and communities to adopt healthy behaviors. Conduct outreach for medical personnel or health organizations to implement community programs that promote, maintain, and improve individual and community health. May provide social support and informal counseling, and provide services such as first aid and blood pressure screening. | Lay Health Advocate; Peer Health Promoter | 40,500 ↗<br>182/90 ↗<br>$25,700-$37,000 | Social | Requirements for community health workers vary, although they typically have at least a high school diploma and must complete a brief period of on-the-job training. Some states have certification programs for community health workers. |
| **Dental Assistants (M)** Many tasks, ranging from providing patient care and taking x rays to recordkeeping and scheduling appointments. Duties vary by state and by the dentists' offices where they work. | Certified Dental Assistant; Orthodontic Assistant | 303,200 ↗<br>635/233 →<br>$33,200-$40,990 | Conventional | Preference is given to graduates of career and technical education and associate programs. Some assistants are trained on the job. Hired by dentist offices, hospitals and government. |
| **Dental Hygienists (M)** Clean teeth, examine patients for signs of oral diseases such as gingivitis, and provide other preventative dental care. They also educate patients on ways to improve and maintain good oral health. | Oral Hygienist, Dental Assistant | 192,800 ↑<br>676/340 ↗<br>$53,310-$63,030 | Social | Must be a graduate of an approved training program. License required. Hired by dental offices, public health offices, hospitals or clinics. |
| **Dental Laboratory Technicians (M)** Construct and repair full or partial dentures or dental appliances. | Crown and Bridge Technician; Dental Ceramist; Orthodontic Technician | 39,000 ↘<br>239/122 ↗<br>$24,520-$37,080 | Realistic | Employers may prefer an employee with career and technical education or apprenticeship training. Must be able to work with minute detail and work under stress. |
| **Emergency Medical Technicians (M)** Assess injuries, administer emergency medical care, and extricate trapped individuals. Transport injured or sick persons to medical facilities. | Flight Paramedic, Surgical Technician | 239,100 ↗<br>747/375 ↗<br>$16,880-$29,130 | Social | There are three levels of trained EMTs ranging in responsibility from administering immediate first aid to more sophisticated care techniques, such as intravenous therapy. Hired by hospitals, private firms, police and fire departments. |
| **Home Health Aides** Provide routine individualized healthcare at the patient's home or in a care facility. Monitor or report changes in health status. May also provide personal care such as bathing, dressing, and grooming of patient. | Home Health Attendant; Home Hospice Aide | 875,100 ↑<br>1,972/923 ↑<br>$22,700-$28,640 | Social | Employers may prefer a high school graduate. Employers seek individuals who exhibit warmth, dependability, and level headedness. May be part-time work. Some agencies require certified nurses aide training. |
| **Medical and Clinical Laboratory Technicians (M)** Perform routine tests in medical laboratory. Prepare tissues, draw blood samples, do urinalysis and blood counts. Work under the direction of a medical technologist. | Histology Technician; Pathology Technician; Cytogenetic Technologist | 161,500 ↑<br>396/216 ↑<br>$33,090-$42,560 | Realistic | Most have an associate's degree since preference is given to those who have formal training. Most are employed by hospitals. Work under the supervision of a medical technologist. Certification required. |
| **Medical Records and Health Information Technicians (M)** Compile, process, and maintain medical records of hospital and clinic patients in a manner consistent with medical, administrative, ethical, legal, and regulatory requirements of the heath care system. | Cancer Registrar; Health Information Coder; Health Information Systems Technician; Medical Records Specialist | 186,300 ↗<br>726/351 ↗<br>$26,090-$35,860 | Conventional | Work in hospitals, clinics, nursing homes, or other related institutions. Employers prefer graduates of a two-year associate's degree or vocational program. |
| **Medical Transcriptionists** Transcribe medical reports recorded by physicians and other healthcare practitioners using various electronic devices, covering office visits, emergency room visits, diagnostic imaging studies, operations, chart reviews, and final summaries. Transcribe dictated reports and translate abbreviations into fully understandable form. | Medical Stenographer; Medical Transcriber; Pathology Transcriptionist | 84,100 ↘<br>446/111 ↘<br>$25,400-$32,750 | Conventional | Employers require career and technical education training. Must have accurate typing speed of 60 to 80 words per minute. Must have knowledge of medical terminology, anatomy, and physiology; correct grammar; accurate spelling; and good general office practices. |
| **Nurses, Licensed Practical (M)** Care of ill, injured, convalescent or disabled persons in hospitals, nursing homes, clinics, private homes, group homes and other similar settings. | Pediatric LPN, Certified Nurse Assistant, Registered Nurse | 738,400 ↗<br>3,342/1,499 ↗<br>$33,280-$39,790 | Social | Must graduate from an approved educational program and pass an examination given by the state board of nursing. Employed by nursing homes, hospitals, clinics, and other related institutions. |
| **Nurses, Registered (M)** Assess patient health problems and needs, develop and implement nursing care plans and maintain medical records. Administer nursing care to ill, injured, or disabled patients. May specialize in areas as profusionist, nurse anesthetist and other areas. | Coronary Care Unit Nurse; Hospice Registered Nurse; Psychiatric Nurse | 2,711,500 ↗<br>7,731/3,134 ↗<br>$47,480-$58,120 | Social | Nursing degree can be obtained in two years or four years of college. Must pass examination given by State Board of Nursing in order to be licensed. |
| **Nursing Assistants** Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants. | Certified Nurse Aide; Certified Nursing Assistant; Nursing Care Attendant | 1,479,800 ↗<br>6,721/2,452 ↗<br>$24,620-$28,860 | Social | Nursing assistants must complete a state-approved education program and must pass their state's competency exam to become certified. Orderlies generally have at least a high school diploma. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# HEALTH SCIENCE

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree *(continued)*** | | | | |
| **Occupational Therapy Assistants (M)** Assist occupational therapists in providing occupational therapy treatments and procedures. | Physical Therapist Assistants, Occupational Therapists | 30,300 ↑<br>120/75 ↑<br>$31,900-$44,520 | Social | An associate's degree is required. Must write a proficiency exam. Must be able to work with people. Hired by hospitals, schools, private agencies. |
| **Pharmacy Technicians (M)** Assist licensed pharmacists dispense prescription medication to customers or health professionals. | Pharmacist, Surgical Technologist, Pharmacy Assistant | 355,300 ↗<br>729/203 ↗<br>$29,690-$36,120 | Conventional | Two-year degree in pharmacy technology or equivalent training is required. License required. Must have excellent attention to detail and ability to prioritize. |
| **Radiologic Technologists (M)** Take X-Rays and CAT scans or administer nonradioactive materials into patient's blood stream for diagnostic purposes. Also may operate computed topography or magnetic resonance. | Computed Tomography (CT) Scanner Operator; X-Ray Technician | 199,200 ↗<br>544/201 ↗<br>$38,420-$47,950 | Realistic | Successful completion of two to four years of formal training is necessary. Ability to deal with people essential. Hired by hospitals, clinics, and dental offices. Certification required. |
| **Respiratory Therapists** Assess, treat, and care for patients with breathing disorders. Assume primary responsibility for all respiratory care modalities, including the supervision of respiratory therapy technicians. Initiate and conduct therapeutic procedures; maintain patient records; and select, assemble, check, and operate equipment. | Inhalation Therapist; Oxygen Therapist; Registered Respiratory Therapist | 119,300 ↗<br>336/136 ↑<br>$42,550-$50,000 | Social | Training ranges from an associate's to a master's degree. Shift work is common. Must be able to deal with people while under stress. Must be licensed in North Dakota. |
| **Surgical Technologists (M)** Assist in operations, under supervision of surgeons, registered nurses or other surgical personnel. | Certified Surgical Technologist; Operating Room (OR) Tech; Surgical Scrub Technologist | 98,500 ↑<br>330/145 ↑<br>$31,200-$38,860 | Realistic | Most are trained at technical schools or colleges. Must be conscientious, orderly, emotionally stable, and have good manual dexterity. Hired by hospitals or directly by surgeons. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Anesthesiologists** Physicians who administer anesthetics prior to, during, or after surgery or other medical procedures. | Obstetrical Anesthesiologist | 33,900 ↗<br>92/40 ↗<br>N/A | Investigative | Anesthesiologists have demanding education and training requirements, including at least 4 years of undergraduate school, 4 years of medical school, and, depending on their specialty, 3 to 8 years in internship and residency programs. |
| **Athletic Trainers** Evaluate and advise individuals to assist recovery from or avoid athletic-related injuries or illnesses, or maintain peak physical fitness. May provide first aid or emergency care. | Certified Athletic Trainer, Fitness Trainer | 22,900 ↗<br>76/41 ↑<br>$29,050-$36,490 | Social | Athletic trainers and exercise physiologists need at least a bachelor's degree. In most states, athletic trainers need a license or certification; requirements vary by state. |
| **Chiropractors** Adjust spinal column and other articulations of the body to correct abnormalities of the human body believed to be caused by interference with the nervous system. Examine patient to determine nature and extent of disorder. | Chiropractic Physician, Osteopaths, Physical Therapists | 44,400 →<br>293/69 ↗<br>$45,150-$72,470 | Social | Most students enroll in two to four year pre-med curriculum then transfer to a chiropractic school. Most are engaged in independent practice. License required. |
| **Dentists (M)** Diagnose and treat problems with a patient's teeth, gums, and related parts of the mouth. They provide advice and instruction on taking care of teeth and gums and on diet choices that affect oral health. | Maxillofacial Surgeon, Dental Hygienist | 125,800 ↗<br>179/63 →<br>$104,310-$183,600 | Investigative | A four-year program after completion of a bachelor's degree is common. More opportunities in the rural communities in North Dakota. Most are self-employed. License required. |
| **Dietitians and Nutritionists (M)** Plan and conduct food service or nutritional programs to assist in the promotion of health and control of disease. | Clinical Dietitian, Public Health Nutritionist, Food Technologist | 67,400 ↗<br>220/72 ↗<br>$40,060-$52,090 | Investigative | A bachelor's degree with a major in food and nutrition is required plus an internship. Master's degree requirements are becoming more common. Work at medical facilities, schools. |
| **Family and General Practitioners** Physicians who diagnose, treat, and help prevent diseases and injuries that commonly occur in the general population. May refer patients to specialists when needed for further diagnosis or treatment. | Family Practice Physician, Surgeon, Pediatrician | 124,000 →<br>638/226 →<br>$87,780-$173,590 | Investigative | Physicians and surgeons have demanding education and training requirements. Almost all physicians complete at least 4 years of undergraduate school, 4 years of medical school, and, depending on their specialty, 3 to 8 years in internship and residency programs. |
| **Health Educators** Provide and manage health education programs that help individuals, families, and their communities maximize and maintain healthy lifestyles. Collect and analyze data to identify community needs prior to planning, implementing, monitoring, and evaluating programs designed to encourage healthy lifestyles, policies, and environments. May administer fiscal resources for health education programs. | Community Health Education Coordinator; Diabetes Educator; Public Health Educator | 58,900 ↗<br>184/82 ↗<br>$39,880-$52,340 | Social | Health educators need a bachelor's degree. Many employers require the Certified Health Education Specialist (CHES) credential. |
| **Health Services Managers** Plan, direct, or coordinate medical and health services in hospitals, clinics, managed care organizations, public health agencies, or similar organizations. | Clinic Director; Hospital Administrator; Medical Records Administrator; Mental Health Program Manager | 315,500 ↗<br>755/354 ↗<br>$54,240-$80,950 | Enterprising | Employers seek applicants who have had clinical experience (as nurses or therapists, for example) as well as academic preparation in business or health services administration. |
| **Healthcare Social Workers** Provide individuals, families, and groups with the psychosocial support needed to cope with chronic, acute, or terminal illnesses. Services include advising family care givers, providing patient education and counseling, and making referrals for other services. May also provide case management or interventions designed to promote health and prevent disease. | Hospice Social Worker; Oncology Social Worker; Public Health Social Worker | 146,200 ↑<br>446/173 ↗<br>$37,290-$45,450 | Social | A bachelor's degree in social work degree is the most common minimum requirement to qualify for a job as a social worker; however, majors in psychology, sociology, and related fields may be adequate to qualify for some entry-level jobs. |

# HEALTH SCIENCE

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – Bachelor's Degree or Higher *(continued)*** | | | | |
| **Medical Scientists, Except Epidemiologists** Conduct research dealing with the understanding of human diseases and the improvement of human health. Engage in clinical investigation, research and development, or other related activities. Includes physicians, dentists, public health specialists, pharmacologists, and medical pathologists who primarily conduct research. | Cancer Researcher; Immunochemist; Toxicologist | 103,100 →<br>59/12 ↓<br>$50,320-$86,330 | Investigative | Medical scientists typically need a Ph.D., usually in biology or a related life science, from an accredited postsecondary institution. Some also have a medical degree. |
| **Mental Health Counselors** Counsel with emphasis on prevention. Work with individuals and groups to promote optimum mental and emotional health. May help individuals deal with issues associated with addictions and substance abuse; family, parenting, and marital problems; stress management; self-esteem; and aging. | Licensed Clinical Mental Health Counselor (LCMHC); Licensed Mental Health Counselor (LMHC) | 128,400 ↑<br>136/65 ↑<br>$27,440-$40,430 | Social | Mental health counselors and marriage and family therapists typically are required to have a master's degree and a license to practice. |
| **Occupational Therapists (M)** Assess, plan, organize and participate in rehabilitative programs that help restore vocational, homemaking and daily living skills, as well as general independence, to disabled persons. | Physical Therapists, Occupational Therapy Assistants | 113,200 ↑<br>428/168 ↑<br>$50,920-$63,070 | Social | May work in hospitals, nursing homes, rehabilitation institutions, schools and other related sites. OT graduates complete a master's degree. License required. |
| **Optometrists (M)** Diagnose, manage, and treat conditions and diseases of the human eye and visual system. Examine eyes and visual system, diagnose problems or impairments, prescribe corrective lenses, and provide treatment. | Ophthalmologist, Optician | 33,100 ↗<br>189/92 ↗<br>$69,910-$130,380 | Investigative | A bachelor's degree plus two-three years of pre-optometric study required. Business ability and self-discipline are necessary, as well as ability to deal with people. High aptitude in science and math. Most are self-employed. |
| **Pharmacists (M)** Dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medication and their use. | Pharmacologist, Pharmacy Technician | 286,400 →<br>833/328 →<br>$91,570-$113,660 | Investigative | A five-year program of study required. Employers may require completion of a residency program at an accredited hospital or several years of experience. Willingness to work evenings and weekends necessary. License required. |
| **Physical Therapists (M)** Assess, plan, organize and participate in rehabilitative programs that improve mobility, relieve pain, increase strength and decrease or prevent deformity of patients suffering from disease or injury. | Geriatric Physical Therapist; Physiotherapist; Pulmonary Physical Therapist | 204,200 ↑<br>537/289 ↑<br>$56,140-$69,900 | Social | A bachelor's degree is required; however, master's degrees are becoming increasingly important. Hired by medical care facilities and schools. To be licensed in ND, must graduate from an accredited program and pass the licensure exam. |
| **Physician Assistants (M)** Provide healthcare services typically performed by a physician, under the supervision of a physician. Conduct complete physicals, provide treatment and counsel patients. | Anesthesiologist Assistant; Family Practice Physician Assistant; Nurse Practitioner | 86,700 ↑<br>286/148 ↑<br>$82,290-$96,010 | Social | Must have worked at least four years as a registered nurse to enter the training program. Work in health facilities. Ability to work with people essential. License required. |
| **Substance Abuse and Behavioral Disorder Counselors** Counsel and advise individuals with alcohol, tobacco, drug, or other problems, such as gambling and eating disorders. May counsel individuals, families, or groups or engage in prevention programs. | Addiction Counselor; Alcohol and Drug Counselor; Chemical Dependency Counselor | 89,600 ↑<br>320/129 ↗<br>$41,430-$49,350 | Social | Educational requirements range from a high school diploma to a master's degree, depending on the setting, type of work, state regulations, and level of responsibility. |

## Melissa Wagner • Glen Ullin High School

**Melissa** considered a career in nursing while in high school, and chose elective classes that would prepare her for college. Through the Roughrider Area Career and Technical Center, she enrolled in Health Careers I and II, Medical Terminology, and Sports Medicine/Athletic Training. As a member of SkillsUSA, she won state championships in the Medical Terminology event, and placed as high as fourth at the national level. She further developed her leadership skills as North Dakota SkillsUSA President. "Technical classes and my involvement in extracurricular activities helped me prepare for the nursing program at Bismarck State College."

After completing the two-year Registered Nurse (RN) program, Melissa had to meet additional requirements to become fully qualified. The Board of Nursing verifies nursing school completion, and she had to pass a national licensure exam. The purpose of the exam is to ensure that candidates demonstrate the competencies needed for the nursing profession. She is currently working on her Bachelor's degree in nursing (BSN), and hopes to be certified in the specialty she is working in. Melissa hopes to work in an Intensive Care Unit in the future.

Melissa's values have been shaped by growing up in North Dakota. Her family taught the importance of doing what was right and showing compassion for others. "There is no better feeling in the world than knowing you have made a difference in someone else's life." A typical day includes reading reports on resident care, checking on medications and treatments. Shift work and the inability to help some patients can be stressful, but she finds the rewards are worthwhile.

For those students planning their futures, Melissa hopes they recognize the value of North Dakota's bright future. "Chase your dreams no matter how crazy they seem, and don't let anyone hold you back!"

SkillsUSA

# HEALTH SCIENCE

## North Dakota Health Science Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Biotechnology Research & Development** | ❑ Biotechnology (NDSCS)<br>❑ Pharmacy Technician (BSC, DCB, NDSCS, TMCC) | ❑ Biotechnology (NDSU)<br>❑ Biochemistry (NDSU, UJ)<br>❑ Pharmaceutical Sciences (NDSU) | ❑ Biochemistry (NDSU)<br>❑ Pharmaceutical Sciences (NDSU) |
| **Diagnostic Services** | ❑ Phlebotomy Technician (BSC, TMCC)<br>❑ EMT – Paramedic Technician (BSC, DCB, NDSCS)<br>❑ Clinical Laboratory Technician (BSC, NDSCS, RC, TMCC, WSC)<br>❑ Radiologic Technology (BSC, WSC)<br>❑ Histotechnican (UND)<br>❑ Medical Technology (TMCC) | ❑ Medical Lab Science (MaSU, MiSU, NDSU, UM, UND, VCSU)<br>❑ Radiologic Technology (MiSU, NDSU, UM) | ❑ Medical Lab Science (UND) |
| **Health Informatics** | ❑ Health Information Technician/Management (DCB, NDSCS, RC, WSC)<br>❑ Medical Coding/Billing (DCB, NDSCS, RC, UTTC, WSC)<br>❑ Health Professions/Sciences (DCB, RC)<br>❑ Environmental Public Health (TMCC)<br>❑ Medical Administrative Assistant (BJCC, DCB, FBCC, WSC)<br>❑ Medical Administration (RC) | ❑ Health Care/Information Management (RC, UM)<br>❑ Health Communication (NDSU)<br>❑ Bioinformatics (MiSU) | ❑ Health Care Administration (UM)<br>❑ Public Health (NDSU, UND)<br>❑ Nurse Administrator (UM)<br>❑ Genomics and Bioinformatics (NDSU) |
| **Support Services** | ❑ Dietetics (WSC, UTTC) | ❑ Environmental Health (DSU)<br>❑ Dietetics (NDSU, UND) | ❑ Exercise Physiology/Kinesiology (UM)<br>❑ Dietetics/Exercise (NDSU) |
| **Therapeutic Services** | ❑ Massage Therapy (JSHDF, JSHDGF, TSPA, WSC)<br>❑ Mental Health/Addictions (WSC)<br>❑ Psychology (BSC, DCB, NDSCS, TMCC, WSC)<br>❑ Optometry (BSC, NDSCS, TMCC, WSC)<br>❑ Dental Assisting (BSC, NDSCS, TMCC, WSC)<br>❑ Health/Medicine/Medical Assistant (BSC, DCB, RC, TMCC, WSC)<br>❑ Nursing (BJCC, BSC, DCB, FBCC, LRSC, MaSU, NDSCS, TMCC, WSC)<br>❑ Practical Nursing (BSC, DCB, DSU, SBC, UTTC, WSC)<br>❑ Occupational Therapy Assistant (NDSCS, WSC)<br>❑ Physical Therapy Assistant (TMCC)<br>❑ Respiratory Therapy (BSC)<br>❑ Surgical Technology (BSC, RC)<br>❑ Chiropractic (BSC, NDSCS, WSC) | ❑ Psychology (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Health Sciences/Biology (UND, VCSU)<br>❑ Nursing (DSU, MaSU, MiSU, NDSU, RC, UJ, UM, UND)<br>❑ Respiratory Care/Therapy (NDSU, UM)<br>❑ Music Therapy (UND) | ❑ Nursing (NDSU)<br>❑ Occupational Therapy (UM, UND)<br>❑ Physician Assistant (UND)<br>❑ Psychology (UND)<br>❑ Respiratory Therapy (UM)<br>❑ Medicine (UND)<br>❑ Physical Therapy (UJ, UM, UND) |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **JSHDF** | Josef's School of Hair Design - Fargo | josefsschoolofhairdesign.com |
| **JSHDGF** | Josef's School of Hair Design - Grand Forks | josefsschoolofhairdesign.com |
| **MaSU** | Mayville State University | www.mayvillestate.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College - Fargo | www.rasmussen.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TSPA** | The Salon Professional Academy | www.tspafargo.com |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

# NOTES

# HOSPITALITY & TOURISM

**The management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Amusement and Recreation Attendants** Perform variety of attending duties at amusement or recreation facility. May schedule use of recreation facilities, maintain and provide equipment to participants of sporting events or recreational pursuits, or operate amusement concessions and rides. | Arcade Attendant; Golf Caddy; Ski Lift Operator | 267,100 →<br>866/525 →<br>$16,800-$19,910 | Enterprising | Attendants work in recreational facilities and will have on-the-job training. Experience with customer service, safety procedures and cashier skills would benefit. |
| **Food Service Managers (M)** Plan, direct, or coordinate activities of an organization or department that serves food and beverages. | Banquet Director; Food Service Director; Tavern Operator | 321,400 ↘<br>597/136 ↘<br>$41,280-$60,090 | Enterprising | Many positions filled with experienced food service workers. Employers prefer two and four-year graduates of food services management programs. Good communications skills essential. |
| **Hosts and Hostesses** Welcome patrons, seat them at table or in lounge, and help ensure quality of facilities and service. | Dining Room Host, Maitre D', Wait Staff | 347,300 ↘<br>851/751 →<br>$16,800-$19,050 | Enterprising | Most are trained on the job. Must be able to work in a rapid and cordial manner. A clean, neat appearance and pleasant manner is necessary. Hired by restaurants, hotels, and bars. |
| **Hotel, Motel, and Resort Desk Clerks (M)** Accommodate hotel, motel, and resort patrons by assigning rooms to guests, issuing room keys, transmitting and receiving messages, keeping records of guests' accounts, making reservations, and presenting statements to and collecting payments from departing guests. | Hotel Front Desk Clerk; Hotel Registration Clerk | 231,600 →<br>1,241/820 ↗<br>$18,250-$23,990 | Conventional | Employers prefer applicants with clerical ability and a knowledge of bookkeeping. Must enjoy working with people and display a courteous and friendly manner. |
| **Landscaping and Groundskeeping Workers** Teach sport activity to individuals or groups at private recreational facility or school. Explain, demonstrate, observe, lecture, and motivate participants. Organizes and conducts competition and tournaments. | Recreation Programmers, Athletic Trainer, Golf Club Professional | 1,124,900 →<br>2,520/997 →<br>$19,630-$25,920 | Realistic | Most landscaping and grounds workers need no formal education and are trained on the job. Most states require licensing for workers who apply pesticides. |
| **Lodging Managers (M)** Plan, direct, or coordinate activities of an organization or department that provides lodging and other accommodations. | Bed and Breakfast Innkeeper; Hotel Manager; Innkeeper | 50,400 ↘<br>145/54 ↘<br>$32,880-$57,580 | Enterprising | Employers seek management skills that can be gained from formal training or through experience. Must be able to organize and direct the work of others. Employers may prefer graduates of 2-4 year hotel/motel management program. |
| **Maids and Housekeeping Cleaners** Perform any combination of light cleaning duties to maintain private households or commercial establishments, such as hotels and hospitals, in a clean and orderly manner. Duties may include making beds, replenishing linens, cleaning rooms and halls, and vacuuming. | Chambermaid; House Cleaner; Housekeeping Staff | 1,434,600 →<br>5,805/2,023 →<br>$16,870-$22,130 | Realistic | Employers may prefer a high school graduate. Must be able to deal effectively with people. |
| **Recreation Workers (M)** Conduct recreation activities with groups in public, private, or volunteer agencies or recreation facilities. Organize and promote activities, such as arts and crafts, sports, games, music, dramatics, social recreation, camping, and hobbies, taking into account the needs and interests of individual members. | Activities Aide; Camp Counselor; Playground Worker | 345,400 →<br>1,201/289 →<br>$18,530-$28,100 | Social | Training ranges from a high school diploma to a bachelor's degree. A number of these positions are part-time, seasonal, and volunteer. Work in hospitals, prisons, private and public recreation facilities. |
| **Tour Guides** Escort individuals or groups on sightseeing tours or through places of interest, such as industrial establishments, public buildings, and art galleries. | Historical Site Guide; Museum Guide; Sightseeing Guide | 41,400 ↘<br>203/119 →<br>$16,900-$18,070 | Social | Tour guides must enjoy working with the public and have in-depth knowledge of the destination features. |
| **Travel Agents** Plan itineraries and arrange accommodations and other travel services for customers. May plan and sell package tours. Compute costs, make hotel reservations, obtain collect payment. | Corporate Travel Expert, Travel Service Consultant, Reservation Agent | 73,300 ↓<br>311/47 ↓<br>$20,640-$29,440 | Enterprising | A high school diploma typically is required for someone to become a travel agent. However, many employers prefer additional formal training as well. Good communication and computer skills are essential. |
| **Waiters and Waitresses** Take orders and serve food and beverages to patrons at tables in dining establishment. | Flight Attendants, Dining Car Servers, Hosts and Hostesses | 2,362,200 ↘<br>7,787/4,778 →<br>$16,840-$21,060 | Social | Most learn their skills on the job. Many are students working part-time. Must be at least 21 if alcoholic beverages are served. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Meeting, Convention, and Event Planners** Coordinate activities of staff, convention personnel, or clients to make arrangements for group meetings, events, or conventions. | Conference Planner; Corporate Meeting Planner; Wedding Planner | 94,200 ↑<br>179/90 ↑<br>$30,160-$44,660 | Enterprising | Most meeting, convention, and event planning positions require a bachelor's degree. Job opportunities should be best for those with a degree in hospitality or tourism management. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# HOSPITALITY & TOURISM

## North Dakota Hospitality And Tourism Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Lodging** | ❑ Advertising & Marketing (DCB)<br>❑ Marketing Management (DCB, LRSC, NDSCS, RC, WSC)<br>❑ Customer Relationship Management (VCSU) | ❑ Business Administration/Hospitality & Tourism Mgmt. (UJ)<br>❑ Hospitality & Tourism Management (NDSU, UJ) | |
| **Recreation, Amusements & Attractions** | ❑ Advertising & Marketing (DCB)<br>❑ Golf Course Grounds Technician (DCB)<br>❑ Marketing Management (DCB, LRSC, NDSCS, RC, WSC)<br>❑ Recreation Management (DCB, WSC)<br>❑ Recreation Maintenance (BJCC) | ❑ Recreation and Tourism Studies (UND) | |
| **Restaurant & Food/ Beverage Services** | ❑ Culinary Arts (BJCC, NDSCS)<br>❑ Restaurant Management (NDSCS)<br>❑ Culinary Arts (NDSCS, UTTC)<br>❑ Food Service/Nutrition (BJCC, WSC)<br>❑ Dietetics (UTTC, WSC) | ❑ Hospitality & Tourism Management (NDSU, UJ)<br>❑ Dietetics (NDSU, UND) | ❑ Dietetics/Exercise (NDSU) |
| **Travel & Tourism** | ❑ Advertising & Marketing (DCB)<br>❑ Foreign Language (BSC)<br>❑ Marketing Management (DCB, LRSC, NDSCS, RC, WSC)<br>❑ Native American Studies/Language (CCCC, FBCC, SBC, TMCC)<br>❑ Spanish (WSC) | ❑ Public Relations and Advertising (NDSU)<br>❑ Recreation and Tourism Studies (UND)<br>❑ Arabic (MiSU)<br>❑ Chinese Studies (UND)<br>❑ French (NDSU, UJ, UND)<br>❑ German (MiSU, UJ, UND)<br>❑ International/Intercultural Studies (DSU, NDSU, TBC, UND)<br>❑ Native American Studies (FBCC, UND)<br>❑ Norwegian (UND)<br>❑ Spanish (DSU, MiSU, NDSU, UJ, UM, UND, VCSU) | ❑ Linguistics (UND) |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
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| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TBC** | Trinity Bible College | www.trinitybiblecollege.edu |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

# NOTES

# HUMAN SERVICES

**Career pathways related to families and human needs such as counseling and mental health services, family and community services, personal care, and consumer services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Childcare Workers** Attend to children at schools, businesses, private households, and childcare institutions. Perform a variety of tasks, such as dressing, feeding, bathing, and overseeing play. | Au Pair; Daycare Provider; Nanny | 1,312,700 →<br>3,921/1,647 →<br>$16,820-$20,190 | Social | Employers may prefer career and technical education training. Must have the desire and ability to work with small children. |
| **Fitness Trainers and Aerobics Instructors** Instruct or coach groups or individuals in exercise activities. Demonstrate techniques and form, observe participants, and explain to them corrective measures necessary to improve their skills. | Personal Trainer; Yoga Instructor | 267,000 →<br>670/135 ↘<br>$19,600-$27,780 | Social | The education and training required for fitness trainers and instructors varies by type of specialty, and employers often hire those with certification. |
| **Hairdressers, Hairstylists, and Cosmetologists** Provide beauty services, such as shampooing, cutting, coloring, and styling hair, and massaging and treating scalp. May apply makeup, dress wigs, perform hair removal, and provide nail and skin care services. | Beautician; Wig Stylist | 611,200 →<br>1,939/623 ↘<br>$18,090-$30,000 | Artistic | Must complete a state approved training program. Must be willing to work weekends and evenings and stand for long periods of time. It may take some time to build up a clientele. License required. |
| **Massage Therapists** Perform therapeutic massages of soft tissues and joints. May assist in the assessment of range of motion and muscle strength, or propose client therapy plans. | Deep Tissue Massage Therapist; Licensed Massage Therapist; Swedish Masseuse | 132,800 ↗<br>323/57 ↘<br>$28,100-$43,050 | Social | Completion of 750 hours of instruction from an accredited massage therapy school. License required. |
| **Morticians, Undertakers, and Funeral Directors** Perform various tasks to arrange and direct funeral services, such as coordinating transportation of body to mortuary, interviewing family or other authorized person to arrange details, aiding with the selection of officials for religious rites, and providing transportation for mourners. | Certified Mortician; Funeral Arranger | 23,500 →<br>85/25 ↘<br>$22,560-$42,110 | Social | An associate's degree in mortuary science is the minimum education requirement for morticians, undertakers, funeral directors, and funeral service managers. With the exception of funeral service managers, all workers must be licensed. |
| **Social and Human Service Assistants** Assist in providing client services in many fields, such as psychology, rehabilitation, or social work. May assist clients in identifying and obtaining available benefits,social and community services. May assist social workers with developing, organizing, and conducting programs to prevent and resolve problems relevant to substance abuse, human relationships, rehabilitation, or dependent care. | Case Work Aide; Family Service Assistant; Human Services Worker | 372,700 ↗<br>859/387 ↗<br>$23,840-$32,730 | Conventional | While a bachelor's degree usually is not required for this occupation, employers increasingly seek individuals with relevant work experience or education beyond high school. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Clergy (M)** Conduct religious worship and perform other spiritual functions associated with beliefs and practices of religious faith or denomination. Provide spiritual and moral guidance and assistance to members. | Imam; Priest; Rabbi | 239,600 →<br>1,060/217 ↓<br>$29,950-$48,500 | Social | Clergy work in religious, educational, medical, and social agencies. State licensing is often required. |
| **Clinical, Counseling, and School Psychologists (M)** Diagnose and treat mental disorders; learning disabilities; and cognitive, behavioral, and emotional problems, using individual, child, family, and group therapies. May design and implement behavior modification programs. | Child Psychologist; Geropsychologist; School Psychologist; Vocational Psychologist | 145,100 →<br>268/95 ↘<br>$37,280-$65,560 | Investigative | Doctoral degree is required for private practice, college positions, and administrative type work. License required for private practice. Hired by schools, hospitals, and private industry. Competition is keen. |
| **Human Resources Specialists** Perform activities in the human resource area. Includes employment specialists who screen, recruit, interview, and place workers. | Human Resources Generalist; Personnel Recruiter; Staffing Coordinator | 418,000 ↘<br>910/265 →<br>$39,640-$54,720 | Enterprising | Applicants must usually have a bachelor's degree in human resources, business, or a related field. However, the level of education and experience required varies by position and employer |
| **Probation Officers and Correctional Treatment Specialists** Provide social services to assist in rehabilitation of law offenders in custody or on probation or parole. Make recommendations for actions involving formulation of rehabilitation plan and treatment of offender, including conditional release and education and employment stipulations. | Juvenile Probation Officer; Parole Agent; Parole Officer | 90,300 ↓<br>175/52 ↘<br>$40,110-$48,730 | Social | Probation officers and correctional treatment specialists usually need a bachelor's degree. In addition, most employers require candidates to pass oral, written, and psychological exams. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# HUMAN SERVICES

## North Dakota Human Services Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Consumer Services** | | ❑ Interpersonal Communications (UJ) | |
| **Counseling & Mental Health Services** | ❑ Human Development & Family Science (NDSU)<br>❑ Psychology (BSC, DCB, NDSCS, TMCC, WSC)<br>❑ Addiction Studies (WSC) | ❑ Psychology (DSU, UJ, MiSU, NDSU, UM, UND, VCSU)<br>❑ Addiction Studies (MiSU) | ❑ Counseling (NDSU, UM, UND)<br>❑ Psychology (UND)<br>❑ Human Development & Family Science (NDSU) |
| **Early Childhood Development & Services** | ❑ Child Development (DCB, FBCC)<br>❑ Early Childhood Education (BSC, CCCC, DCB, FBCC, LRSC, MaSU, NDSCS, RC, SBC, WSC) | ❑ Early Childhood Education (MaSU, MiSU, RC, SBC, TMCC, UM, UND) | |
| **Family & Community Services** | ❑ Community Based Literacy (UND)<br>❑ Social Science (DCB)<br>❑ Human Services (BSC, FBCC, RC, SCB)<br>❑ Social Work (BSC, NDSCS, TMCC)<br>❑ Nonprofit Leadership (UND)<br>❑ Sociology (BSC)<br>❑ Eligibility Worker (BSC)<br>❑ Philosophy (BSC, WSC)<br>❑ Religion (BSC, TBC, WSC) | ❑ Social Work (MiSU, UM, UND)<br>❑ Philosophy (NDSU, UM, UND)<br>❑ Religious/Theology/Biblical Studies (TBC, UJ, UM)<br>❑ Sociology (MiSU, NDSU, UND)<br>❑ Social Sciences (DSU, MaSU, MiSU, NDSU, UND, VCSU)<br>❑ Human Services (RC)<br>❑ Gender Studies (NDSU, UND)<br>❑ Community Nutrition (UND)<br>❑ Culture Studies (UM)<br>❑ Studies in Community and Environment (MiSU)<br>❑ Dietetics (NDSU)<br>❑ Human Development & Family Science (NDSU)<br>❑ Pastoral/Youth/Children's Ministry (TBC, UM)<br>❑ Public Health Education (UND)<br>❑ Rehabilitation and Human Services (UND) | ❑ Social Work (UND)<br>❑ Community Development (NDSU)<br>❑ Sociology (NDSU)<br>❑ Human Development & Family Science (NDSU)<br>❑ Missional Leadership (TBC) |
| **Personal Care Services** | ❑ Athletic/Fitness Training/Coaching (LRSC, TBC, UTTC, WSC)<br>❑ Cosmetology (HAHD, JSHDF, JSHDGF, JZT, MBC, THA, TSPA)<br>❑ Mortuary Science (WSC)<br>❑ Esthetician/Skin Care (JSHDF, JSHDGF, TSPA)<br>❑ Nail Technology/Manicurist (JSHDGF, JZT, TSPA)<br>❑ Barbering (MBC) | ❑ Athletic/Fitness Training (DSU, MaSU, MiSU, NDSU, UJ, UM, UND)<br>❑ Sport and Leisure Management (NDSU, UJ, UM) | ❑ Athletic/Fitness Training (NDSU)<br>❑ Health/Nutrition and Exercise Science (NDSU) |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
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| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **HAHD** | Headquarters Academy of Hair Design | http://hqacademyofhair.com |
| **JSHDF** | Josef's School of Hair Design - Fargo | josefsschoolofhairdesign.com |
| **JSHDGF** | Josef's School of Hair Design – Grand Forks | josefsschoolofhairdesign.com |
| **JZT** | JZ Trend Academy Paul Mitchell Partner School | www.jztrendacademy.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MaSU** | Mayville State University | www.mayvillestate.edu |
| **MBC** | Moler Barber College | http://molerbarberfargo.com/ |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College | www.rasmussen.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TBC** | Trinity Bible College | www.trinitybiblecollege.edu |
| **THA** | The Hair Academy | www.thehairacademynd.com |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **TSPA** | The Salon Professional Academy | www.tspafargo.com |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

# NOTES

# INFORMATION TECHNOLOGY

**Careers related to the design, development, support and management of hardware, software, multimedia and systems integration services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Computer Operators (M)** Monitor and control electronic computer and peripheral electronic data processing equipment to process business, scientific, engineering, and other data according to operating instructions. Monitor and respond to operating and error messages. May enter commands at a computer terminal and set controls on computer and peripheral devices. | Computer Peripheral Equipment Operator; Console Operator | 74,600 ↓<br>253/25 ↓<br>$23,680-$32,810 | Conventional | High school diploma required. Employers prefer applicants with experience in computer operation or those formally trained. Must be adaptable and willing to learn. |
| **Computer User Support Specialists (M)** Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. | Desktop Support Specialist; End-User Support Specialist; Help Desk Technician | 547,700 ↗<br>1,868/780 ↑<br>$33,130-$47,140 | Realistic | Because of the wide range of skills used in different computer support jobs, there are many paths into the occupation. A bachelor's degree is required for some computer support specialist positions, but an associate's degree or postsecondary classes may be enough for others. |
| **Desktop Publishers** Format typescript and graphic elements using computer software to produce publication-ready material. | Desktop Publishing Specialist; Electronic Publisher | 16,400 ↓<br>48/9 ↓<br>$20,810-$26,540 | Artistic | The typical education is an associate's degree in desktop publishing or related field. Knowledge of graphic design is helpful. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Computer Hardware Engineers** Research, design, develop, or test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components. | Computer Hardware Designer; Computer Hardware Developer | 83,300 ↘<br>27/13 ↑<br>$58,880-$103,110 | Investigative | Most computer hardware engineers need a bachelor's degree from an accredited program |
| **Computer Programmers (M)** 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. May assist software developers by analyzing user needs and designing software solutions. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information. | Applications Programmer; Computer Language Coder; Systems Programmer | 343,700 ↘<br>457/139 ↘<br>$38,710-$56,590 | Investigative | Many employers require applicants to have a bachelor's or higher degree and relevant experience; however, certain entry level jobs may require a career and technical education associate's degree/certification in computer science. Must be capable of exacting analytical work. |
| **Computer Systems Analysts (M)** Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. | Applications Analyst; Data Processing Systems Analyst; Information Systems Analyst; Systems Architect | 520,600 ↗<br>813/259 ↗<br>$49,110-$87,310 | Investigative | Preference is given to individuals with a bachelor's degree. Some employers require a master's degree. Depending on the specific job, employers seek backgrounds in accounting, business management, physical sciences, computer science, engineering, etc. |
| **Database Administrators (M)** Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases. | Database Management System Specialist; Database Security Administrator | 118,700 →<br>189/73 ↗<br>$42,550-$70,730 | Conventional | Many employers seek applicants who have a bachelor's degree in computer science or computer information systems. Certain entry level jobs may require an associate's or career and technical education degree in computer science. Must be capable of exacting analytical work. |
| **Information Security Analysts (M)** Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses. | Computer Security Specialist; Internet Security Specialist; Network Security Analyst | 75,100 ↑<br>243/145 ↑<br>$44,910-$63,850 | Conventional | Rapidly changing technology requires an increasing level of skill and education on the part of employees. Professionals with an ever-broader background and range of skills, including technical knowledge, communication and other interpersonal skills are needed. |
| **Network and Computer Systems Administrators** Computer networks are critical parts of almost every organization. Network and computer systems administrators are responsible for the day-to-day operation of these networks. | Network Coordinator; Network Security Administrator; Wide Area Network Administrator | 366,400 →<br>551/163 →<br>$50,000-$67,420 | Investigative | Strong technical knowledge is essential for computer and information systems managers who must understand and guide the work of their subordinates yet also explain the work in non-technical terms to senior management and potential customers. |
| **Software Developers, Applications** Some develop the applications that allow people to do specific tasks on a computer or other device. Others develop the underlying systems that run the devices or control networks. | Computer Applications Engineer; Database Developer; Software Applications Architect; Software Applications Engineer | 613,000 ↗<br>1,031/363 ↗<br>$48,430-$64,860 | Investigative | Employers may prefer applicants with a graduate degree. Must have creative, analytical minds and capacity for detail. Communication essential. Hired by research laboratories, industrial plants, and government. |

**Energy Occupation** **Bright Outlook** **High Skill** **High Wage**

# INFORMATION TECHNOLOGY

**North Dakota Hospitality And Tourism Related Postsecondary Programs**

| Pathway | Associate's Degree or Less | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Information Support & Services** | ❑ Computer Applications (CCCC)<br>❑ Computer Information Systems (DCB)<br>❑ Computer Science (BSC, NDSCS, NDSU)<br>❑ Computer Support Specialist (BSC, TMCC)<br>❑ Geographic Information Systems (BSC, CCCC, UTTC)<br>❑ Information and Communications Tech (NDSCS)<br>❑ IT Forensics (NDSCS)<br>❑ Information Technology (DCB, LRSC, SBC, WSC) | ❑ Applied Business Information Technology (MiSU)<br>❑ Computer Information Systems (MaSU, UM, UND, VCSU)<br>❑ Computer Science (DSU, MiSU, NDSU, RC, UJ, UND)<br>❑ Information Security (RC)<br>❑ Information Technology Management (RC, UJ)<br>❑ Information Technology (UJ) | ❑ Computer Science (NDSU, UND)<br>❑ Information Systems (MiSU)<br>❑ Technology (UND) |
| **Network Systems** | ❑ Information Technology Maintenance/Networking (SBC, WSC)<br>❑ Information Technology (DCB, LRSC, SBC, WSC) | ❑ Information Technology (UJ) | |
| **Programming & Software Development** | ❑ Application Software Specialist (MiSU)<br>❑ Computer Programming (MiSU)<br>❑ Mobile Application Developer (NDSCS)<br>❑ Programming (WSC)<br>❑ Software Application Development/Engineering (NDSU, RC) | ❑ Computer Software Engineering (VCSU)<br>❑ Game & Simulation Programming (RC) | ❑ Software Engineering (NDSU) |
| **Web & Digital Communications** | ❑ Webmaster/Web Designer (BSC, DCB, MiSU, NDSCS, RC, WSC) | | |

**North Dakota Postsecondary Institutions**

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **RC** | Rasmussen College | www.rasmussen.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **UJ** | University of Jamestown | www.uj.edu |
| **MaSU** | Mayville State University | www.mayvillestate.edu | **UM** | University of Mary | www.umary.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **UND** | University of North Dakota | www.und.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu | **VCSU** | Valley City State University | www.vcsu.edu |
| **NDSU** | ND State University | www.ndsu.edu | **WSC** | Williston State College | www.willistonstate.edu |

# NOTES

# LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

**Planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Court Reporters** Use verbatim methods and equipment to capture, store, retrieve, and transcribe pretrial and trial proceedings or other information. Includes stenocaptioners who operate computerized stenographic captioning equipment to provide captions of live or prerecorded broadcasts for hearing-impaired viewers. | Court Stenographer; Court Transcriber; Deposition Reporter | 21,200 ↘<br>74/20 →<br>$40,510-$50,980 | Conventional<br>$ | Many community colleges and technical institutes offer postsecondary certificate programs for court reporters. Many states require court reporters who work in legal settings to be licensed or certified by a professional association. |
| **Detectives and Criminal Investigators** Conduct investigations related to suspected violations of Federal, State, or local laws to prevent or solve crimes. | Deputy United States Marshal; Homicide Detective; Narcotics Investigator | 115,200 ↘<br>320/92 ↘<br>$54,830-$81,300 | Enterprising<br>$ | Civil service regulations govern the appointment of police and detectives in most instances. Candidates must be U.S. citizens, usually at least 20 years of age, and must meet rigorous physical and personal qualifications. |
| **Firefighters (M)** Control and extinguish fires or respond to emergency situations where life, property, or the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, search and rescue, and disaster assistance. | Fire Engine Pump Operator; Forest Firefighter; Marine Firefighter; Smoke Jumper | 307,000 ↘<br>544/198 ↘<br>$29,870-$39,160 | Realistic | A competency exam is required and hiring is done as a result of scores received on the exam. On-the-job training consists of 600-700 hours. Continual training is given. Hired by state and local government. |
| **Fish and Game Wardens** Patrol assigned area to prevent fish and game law violations. Investigate reports of damage to crops or property by wildlife. Compile biological data. | Conservation Enforcement Officer; Wildlife and Game Protector; Wildlife Officer | 6,600 ↘<br>56/21 ↘<br>$35,110-$53,420 | Realistic<br>$ | High school diploma preferred. Applicants must have good vision and hearing and the ability to work with and relate to others. Often applicants must go through a background investigation. |
| **Legal Technicians (Paralegals)** Assist lawyers by investigating facts, preparing legal documents, or researching legal precedent. Conduct research to support a legal proceeding, to formulate a defense, or to initiate legal action. | Legal Aide | 277,000 ↗<br>403/150 ↗<br>$28,280-$42,000 | Conventional | Some lawyers hire legal secretaries and train them on the job, whereas others prefer an associate's or bachelor's degree. Must understand legal terminology. Use of word processing programs essential. |
| **Police, Fire, and Ambulance Dispatchers (M)** Operate radio, telephone, or computer equipment at emergency response centers. Receive reports from the public of crimes, disturbances, fires, and medical or police emergencies. Relay information to law enforcement and emergency response personnel. May maintain contact with caller until responders arrive. | Emergency Operator; 911 Operator; Police Radio Dispatcher | 98,500 ↘<br>480/159 →<br>$28,680-$37,060 | Conventional | Must have good record keeping skills, good verbal communication and customer service skills, and perform well under pressure. Some employers prefer high school graduates. Knowledge of medical terminology is often required. Course work in communications and transportation may increase job opportunities. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Judicial Law Clerks** Assist judges in court or by conducting research or preparing legal documents. | Judicial Clerk | 12,100 ↘<br>43/11 ↘<br>$51,150-$63,830 | Conventional<br>$ | Judicial clerks require a law degree. Clerks help ease the workload for lawyers and judges. |
| **Lawyers (M)** Represent clients in criminal and civil litigation and other legal proceedings, draw up legal documents, or manage or advise clients on legal transactions. May specialize in a single area or may practice broadly in many areas of law. | Attorney; Corporate Counsel; Public Defender | 759,800 →<br>1,541/384 ↘<br>$54,253-$88,336 | Enterprising<br>$ | Three years of graduate study after completion of bachelor's degree is required. Must pass a written exam to be admitted to the bar. Communication skills are essential. Highly competitive job market. |

E Energy Occupation  Bright Outlook  High Skill  $ High Wage

## NOTES

# LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

**North Dakota Law, Public Safety, Corrections & Security Related Postsecondary Programs**

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Correction Services** | ❑ Peace Officer (LRSC)<br>❑ Criminal Justice (BSC, MiSU, NDSCS, RC, SBC, TMCC, UTTC)<br>❑ Social Work (BSC, NDSCS, TMCC) | ❑ Criminal Justice (DSU, MiSU, NDSU, RC, UJ, UM, UND, UTTC, VCSU)<br>❑ Social Work (MiSU, UM, UND)<br>❑ Rehabilitation and Human Services (UND) | ❑ Criminal Justice (NDSU, UND)<br>❑ Social Work (UND) |
| **Emergency & Fire Management Services** | | ❑ Emergency Management (NDSU) | ❑ Emergency Management (NDSU) |
| **Security & Protective Services** | | ❑ Information Security (RC) | |
| **Law Enforcement Services** | ❑ Law Enforcement/Peace Officer (LRSC, RC)<br>❑ Criminal Justice (BSC, MiSU, NDSCS, RC, SBC, TMCC, UTTC) | ❑ Criminal Justice (DSU, MiSU, NDSU, RC, UJ, UM, UND, UTTC, VCSU)<br>❑ Forensic Science (UND) | ❑ Criminal Justice/Criminology (NDSU, UND) |
| **Legal Services** | ❑ Law (NDSCS, WSC)<br>❑ Paralegal/Lay Advocate (RC, SBC) | ❑ Pre-Law/Philosophy (UND)<br>❑ Pre-Law/Political Science (DSU, NDSU) | ❑ Criminal Justice (NDSU, UND) |

**North Dakota Postsecondary Institutions**

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College | www.rasmussen.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

## Kylie Oversen • Killdeer High School

FCCLA membership began during junior high school for **Kylie Oversen**. Martina Anderson, the Killdeer FACS teacher, encouraged her to get involved in the Parliamentary Procedure STAR Event. The Killdeer team was very successful and competed twice at the national level. Kylie enjoyed the opportunity to travel, learned the importance of hard work and the need to work as a team.

Kylie graduated from UND with Social Sciences and Social Work degrees. She is currently enrolled in the UND School of Law and plans to graduate next year. A strong interest in helping people has driven Kylie to pursue her education and legislative interests. She is a member of the North Dakota House of Representatives from District 42 in Grand Forks and finds herself using parliamentary procedure rules every day.

After graduation from law school, she hopes to work in a small law firm in the Grand Forks area and would like to someday provide legal services for a non-profit organization. Kylie is a member of the Human Services Committee in the legislature, and finds the work both interesting and time-consuming. The committee work allows a greater understanding of the need for advocacy to serve the disadvantaged and at-risk populations. Her knowledge of the current challenges in western North Dakota has given her insight to the need for involvement in the local and state political process.

"Students need skills in critical thinking, written and oral communication, and time management to be successful in college and their future careers," according to Kylie. She encourages students to view extracurricular activities in high school and college as a way of gathering information for future decisions. "It's okay to not know exactly where you are going and what your future may be. Think of the classroom as a map which provides direction for your journey."

# MANUFACTURING

**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.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Computer-Controlled Machine Tool Operators, Metal and Plastic** Operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces. | Computer Numerically Controlled (CNC) Shot Peening Operator; Jig Boring Machine Operator for Metal; Welding Robot Operator | 140,300 ↗<br>22/15 ↑<br>N/A | Realistic | Those hired are apprenticed or are trained on the job. Persons must follow strict safety requirements because of potential danger of machines. |
| **Electrical and Electronic Equipment Assemblers** Assemble or modify electrical or electronic equipment, such as computers, test equipment telemetering systems, electric motors, and batteries. | Anode Builder; Battery Builder; Circuit Board Assembler; Electric Motor Controls Assembler | 198,300 ↓<br>338/126 ↗<br>$17,220-$24,780 | Realistic | Electrical and electronics engineering technicians typically need an associate's degree. |
| **First-Line Supervisors of Production and Operating Workers** Directly supervise and coordinate the activities of production and operating workers, such as inspectors, precision workers, machine setters and operators, assemblers, fabricators, and plant and system operators. | Assembly Line Supervisor; Machinist Supervisor; Printing Worker Supervisor | 594,700 ↓<br>1,493/446 →<br>$37,380-$60,610 | Enterprising | Preference is given to those with several years of previous energy industry experience. Good communication, leadership and organizational skills are necessary. Hired by various energy facilities. |
| **Industrial Machinery Mechanics** Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. | Boilerhouse Mechanic; Foundry Equipment Mechanic; Hydroelectric Machinery Mechanic | 319,300 ↗<br>1,614/886 ↑<br>$38,270-$54,270 | Realistic | Industrial machinery mechanics and maintenance workers typically need a high school diploma. However, industrial machinery mechanics need a year or more of training after high school, whereas maintenance workers typically receive on-the-job training that lasts up to a year. |
| **Inspectors, Testers, Sorters, Samplers, and Weighers** Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment. | Machined Parts Quality Inspector; Petroleum Sampler | 464,300 ↘<br>676/300 ↗<br>$28,270-$62,010 | Conventional | Most quality control inspectors need a high school diploma and receive on-the-job training that typically lasts as little as 1 month or up to 1 year. |
| **Multiple Machine Tool Setters, Operators and Tenders, Metal and Plastic** Set up, operate, or tend more than one type of cutting or forming machine tool or robot. | Combination Machine Tool Operator; Multi-Operation Forming Machine Setter | 85,900 ↓<br>82/18 ↘<br>$24,780-$32,880 | Realistic | Training can be done informally on the job, through apprenticeships or formal training at secondary and postsecondary career and technical education schools. May become certified. |
| **Production, Planning, and Expediting Clerks** Coordinate and expedite the flow of work and materials within or between departments of an establishment according to production schedule. Duties include reviewing and distributing production, work, and shipment schedules; conferring with department supervisors to determine progress of work and completion dates; and compiling reports on progress of work, inventory levels, costs, and production problems. | Expeditor; Material Control Clerk; Production Scheduler | 284,700 ↘<br>185/82 ↘<br>$29,180-$40,610 | Conventional | Preference will be given to those who have experience in distribution and management of materials inventory. On-the-job training will be provided. |
| **Sawing Machine Setters, Operators, and Tenders, Wood** Set up, operate, or tend wood sawing machines. May operate Computer Numerical Control (CNC) equipment. Includes lead sawyers. | Buzzsaw Operator; Circle Saw Operator; Rip Saw Operator; Trim Saw Operator | 40,200 →<br>81/44 ↑<br>$26,880-$30,800 | Realistic | Machinists train in apprenticeship programs, vocational schools, community and technical colleges, or informally on the job. A high school diploma is necessary. |
| **Structural Metal Fabricators and Fitters** Fabricate, position, align, and fit parts of structural metal products. | Mill Beam Fitter; Protector Plate Attacher | 79,700 ↘<br>210/131 ↗<br>$29,180-$38,640 | Realistic | A few months of on-the-job training are enough for most workers to learn basic machine operations, but 1 year or more is required to become highly skilled. Computer-controlled machine workers may need more training. Although not always required, employers prefer to hire workers who have a high school diploma. |
| **Tool and Die Makers** Analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges, and machinists' hand tools. | Jig Bore Tool Maker; Metal Die Finisher; Metal Gauge Maker | 78,600 ↓<br>100/17 →<br>$37,720-$44,500 | Realistic | To become a fully trained tool and die maker takes a combination of several years of technical instruction and on-the-job training. A high school diploma is necessary. |
| **Welders, Cutters, Solderers, and Brazers** Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products. | Arc Welder; Cutting Torch Operator; Pipe Welder; Silver Solderer | 357,400 ↘<br>3,079/1,257 ↗<br>$32,050-$50,310 | Realistic | Training for welding, cutting, soldering, and brazing workers varies. Training ranges from a few weeks of technical school or on-the-job training to several years of combined technical school and on-the job training. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products** Sell goods for wholesalers or manufacturers where technical or scientific knowledge is required in such areas as biology, engineering, chemistry, and electronics, normally obtained from at least 2 years of post-secondary education. | Pharmaceutical Sales Representative; Surgical Instruments Sales Representative; Wholesale Ultrasonic Equipment Salesperson | 382,300 →<br>898/291 →<br>$49,620-$81,390 | Enterprising | Employers prefer formal training in marketing, sales, or business. Others may hire high school graduates and train them over a two-year period. |

# MANUFACTURING

**North Dakota Manufacturing Related Postsecondary Programs**

| Pathway | Associate's Degree or Less | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Health, Safety & Environmental Assurance** | ❑ Environmental Technology/Science (FBCC, SBC, WSC, UTTC)<br>❑ Environmental Public Health (NDSU, TMCC) | ❑ Environmental Geoscience (UND)<br>❑ Environmental Health (DSU)<br>❑ Environmental Science (DSU, FBCC, SBC) | ❑ Environmental Management (UND) |
| **Logistics & Inventory Control** | ❑ Information Processing Specialist (BSC)<br>❑ Computerized Office Management (DCB)<br>❑ Management Information Systems (NDSCS) | ❑ Business Process Management (VCSU)<br>❑ Computer Technology Management (DSU)<br>❑ Management Information Systems (MiSU, NDSU)<br>❑ Operations and Supply Chain Management (UND) | ❑ Managerial Logistics (NDSU)<br>❑ Project Management (UM) |
| **Maintenance, Installation & Repair** | ❑ Lineworker (Electrical) (BSC)<br>❑ Mechanical Maintenance Technology (BSC)<br>❑ Welding (BSC, BJCC, LW, NDSCS, SBC, TMCC, UTTC, WSC) | ❑ Industrial Technology (UND) | |
| **Manufacturing Process Production Development** | ❑ Wind Energy Technician (LRSC)<br>❑ Electrical/Electronic Technology (BSC)<br>❑ Electrical Transmission Systems (BSC)<br>❑ Power Plant Technology (BSC)<br>❑ Process Plant Technology (BSC)<br>❑ Renewable Generation Technology (BSC)<br>❑ Sustainable Construction (BSC)<br>❑ Heating, Ventilation, and Air Conditioning (BSC, CCCC, NDSCS, TMCC) | ❑ Energy Management (BSC)<br>❑ Industrial Engineering and Management (NDSU)<br>❑ Manufacturing Engineering (NDSU) | ❑ Industrial Engineering and Management (NDSU) |
| **Production** | ❑ Welding (BSC, BJCC, LW, NDSCS, SBC, TMCC, UTTC, WSC) | ❑ Precision Machining Technology (NDSU) | |
| **Quality Assurance** | ❑ Instrumentation and Control Technology (BSC) | | |

**North Dakota Postsecondary Institutions**

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **NDSCS** | ND State College of Science | www.ndscs.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov | **NDSU** | ND State University | www.ndsu.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu | **UM** | University of Mary | www.umary.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **UND** | University of North Dakota | www.und.edu |
| **LW** | Lynnes Welding – Bismarck & Fargo | http://learntoweld.com | **VCSU** | Valley City State University | www.vcsu.edu |
| **MiSU** | Minot State University | www.minotstateu.edu | **WSC** | Williston State College | www.willistonstate.edu |

## Betty Dollinger-Homme • Fargo Woodrow Wilson High School

**Betty** wanted a career that allowed her to be very active. After high school graduation, she worked as a concrete laborer and soon advanced to heavy equipment operator for road construction. Her work required a lot of travel and she started to look into occupations that would give her the opportunity to be at home on a regular basis. She worked in new home construction for a few years, and decided to go back to school after starting her family. A STEM Girl's Day gave her the opportunity to try welding for the first time and she enjoyed the experience so much, she decided to pursue it further. Betty enrolled in the One-Year Certificate welding program at NDSCS-Fargo and started developing new skills.

Completion of the NDSCS program certified that Betty has a deep knowledge of the metallurgy process, appropriate use of filler metals, the amperage ranges to be used and is skillful in several welding techniques. Each new job may require verification in different types of welding skills. She was required to demonstrate specific skills prior to being hired as a welder on the Fargo Sanford Hospital construction project. She has also proven her welding abilities with the CapX2020 Xcel Energy power line construction, industrial welding, and the repair and remodeling of food industry facilities.

Betty competed in the Welding and Sculpture Design contest through SkillsUSA. She earned First Place in North Dakota and placed 9th at Nationals in Kansas City. She currently volunteers as Chair of the ND Sculpture and Design competition and hopes there will be at least 10 strong competitors at future state events.

It can be challenging for a female working in a predominantly male occupation. However, being part of a positive work environment, a willingness to continually improve skills and advocating for safety and teamwork in the welding environment are important attributes that motivate her. Betty hopes everyone reading this will "give it everything you have and don't leave anything on the table."

# MARKETING

**Planning, managing, and performing marketing activities to reach organizational objectives.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Advertising Sales Agents** Sell or solicit advertising space, time, or media in publications, signage, TV, radio, or the Internet. Includes individuals who obtain leases for outdoor advertising sites or persuade retailers to use sales promotion display items. | Advertising Account Executive; Display Advertising Sales Representative; Yellow Pages Space Salesperson | 154,600 ↓<br>515/168 ↘<br>$26,760-$44,060 | Enterprising | Training ranges from a high school diploma to a bachelor's degree depending on the product complexity and company policies. Good communication skills are essential. |
| **Cashiers** Receive and disburse money in establishments other than financial institutions. May use electronic scanners, cash registers, or related equipment. May process credit or debit card transactions and validate checks. | Cash Register Operator; Grocery Checker; Toll Collector | 3,338,900 ↘<br>12,023/6,306 ↘<br>$17,030-$21,360 | Conventional | Employers prefer high school graduates. Many are part-time high school and college students. Must be able to do repetitive work accurately. |
| **Demonstrators and Product Promoters** Demonstrate merchandise and answer questions for the purpose of creating public interest in buying the product. May sell demonstrated merchandise. | Home Demonstrator; In-Store Demonstrator | 78,100 ↗<br>196/98 ↗<br>$22,010-$27,140 | Enterprising | Most will be trained on the job, however, postsecondary training may improve chances. Must be outgoing, enthusiastic and persuasive. |
| **First-Line Supervisors of Retail Sales Workers** Directly supervise and coordinate activities of retail sales workers in an establishment or department. Duties may include management functions, such as purchasing, budgeting, accounting, and personnel work, in addition to supervisory duties. | Cashier Supervisor; Delicatessen Department Manager | 1,603,300 ↘<br>4,263/1,399 →<br>$27,530-$42,350 | Enterprising | Some employers prefer a four-year degree, others require career and technical education training. Experience may increase job opportunities. Some managers are hired through internal promotion. |
| **Merchandise Displayers and Window Trimmers** Plan and erect commercial displays, such as those in windows and interiors of retail stores and at trade exhibitions. | Display Artist; Mannequin Decorator; Window Decorator | 98,700 ↘<br>371/163 ↗<br>$22,300-$28,660 | Artistic | Retail sales workers typically do not need formal education. A high school diploma is preferred with experience in art and marketing through visual displays. |
| **Real Estate Agents** Rent, buy, or sell property for clients. Perform duties, such as study property listings, interview prospective clients, accompany clients to property site, discuss conditions of sale, and draw up real estate contracts. Includes agents who represent buyer. | Apartment Rental Agent; Right of Way Agent | 342,400 →<br>1,174/261 →<br>$27,020-$50,190 | Enterprising | Must pass a written exam to become a sales agent. Works under the direction of a licensed broker. Broker must be licensed and must have completed 90 hours of real estate coursework and have two years real estate sales experience. May be self-employed. |
| **Telemarketers** Solicit donations or orders for goods or services over the telephone. | Telemarketing Sales Representative; Telephone Solicitor | 250,100 ↘<br>700/152 ↘<br>$17,000-$20,860 | Enterprising | High School graduates are preferred by employers. Must have an interest in sales work. |
| **Wholesale and Retail Buyers, Except Farm Products** Buy merchandise or commodities for resale to consumers at the wholesale or retail level, including both durable and nondurable goods. Analyze buying trends, sales records, price, and quality of merchandise to determine value. Select, order, and authorize payment for merchandise according to contractual agreements. May conduct meetings with sales personnel and introduce new products. | Gold Buyer; Merchandise Buyer | 124,600 ↘<br>363/160 ↗<br>$35,000-$53,960 | Enterprising | Businesses prefer to hire applicants who are familiar with the merchandise they sell as well as with wholesaling and retailing practices. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Fundraisers** Organize activities to raise funds or otherwise solicit and gather monetary donations or other gifts for an organization. May design and produce promotional materials. May also raise awareness of the organization's work, goals, and financial needs. | Campaign Fundraiser; Donor Relations Officer; Fundraising Officer | 65,700 ↗<br>147/41 ↘<br>$33,850-$53,700 | Enterprising | Fundraisers need excellent communication and organizational skills. Most positions require at least a bachelor's degree. |
| **General and Operations Managers** Plan, direct, or coordinate the operations of public or private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. | General Superintendent; Radio Station Manager; Television Station Manager | 1,972,700 →<br>6,428/2,240 ↗<br>$59,440-$103,370 | Enterprising | Must have good interpersonal and customer service skills and knowledge of the company.. Sometimes requires a Bachelor's degree related to that industry. Not an entry-level position. |
| **Market Research Analysts and Marketing Specialists** Research market conditions in local, regional, or national areas, or gather information to determine potential sales of a product or service, or create a marketing campaign. May gather information on competitors, prices, sales, and methods of marketing and distribution. | Market Research Specialist; Marketing Consultant; Marketing Forecaster | 415,700 ↑<br>804/409 ↑<br>$34,110-$51,160 | Investigative | Most market research analysts need at least a bachelor's degree. Top research positions often require a master's degree. Strong math and analytical skills are essential. |
| **Marketing Managers** Plan, direct, or coordinate marketing policies and programs, such as determining the demand for products and services offered by a firm and its competitors, and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services. | Internet Marketing Manager; Marketing Administrator; Marketing Director | 180,500 →<br>305/118 ↗<br>$62,730-$106,690 | Enterprising | College graduates with related experience, high level of creativity and strong communication skills needed. Keen competition for jobs expected. |
| **Public Relations Specialists (M)** Engage in promoting or creating an intended public image for individuals, groups, or organizations. May write or select material for release to various communications media. | Lobbyist; Press Secretary; Publicity Writer | 229,100 →<br>457/114 →<br>$34,960-$51,790 | Enterprising | Public relations specialists typically need a bachelor's degree in public relations, journalism, communications, English, or business. |

# MARKETING

| Postsecondary Programs – Bachelor's Degree or Higher *(continued)* | | | | |
|---|---|---|---|---|
| **Sales Managers** Coordinate sales distribution by establishing sales territories, quotas, and goals and establish training programs for sales representatives. Analyze sales statistics gathered by staff to determine sales potential and inventory requirements and monitor the preferences of customers. | District Sales Manager; Export Manager; Regional Sales Manager; Sales Director | 359,300 ↘<br>825/345 ↗<br>$56,600-$99,570 | Enterprising | College graduates with related experience, high level of creativity and strong communication skills needed. Keen competition for jobs expected. |
| **Survey Researchers** May analyze and interpret the meaning of survey data, determine survey objectives, or suggest test question wording. Includes social scientists who primarily design questionnaires or supervise survey teams. | Pollster; Survey Methodologist; Survey Questionnaire Designer | 18,000 ↗<br>17/5 ↗<br>N/A | Investigative | Most technical research positions require a master's degree. Employers generally prefer candidates who have previous experience performing research, using statistics, and analyzing data. |
| **Training and Development Specialists** Design and conduct training and development programs to improve individual and organizational performance. May analyze training needs. | Computer Training Specialist; Corporate Trainer; Workforce Development Specialist | 228,800 →<br>569/209 ↗<br>$33,260-$51,950 | Social | Candidates need a combination of education and related work experience to become a training and development manager. Although managers need a bachelor's degree for most positions, some jobs require a master's degree. |

**North Dakota Marketing Related Postsecondary Programs**

| Pathway | Associate's Degree or Less | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Marketing Communications** | ❑ Advertising (WSC) | ❑ Public Relations and Advertising (NDSU, UM) | |
| **Marketing Management** | ❑ Advertising & Marketing (DCB)<br>❑ Marketing Management (DCB, NDSCS, LRSC, RC, WSC)<br>❑ Marketing Entrepreneurship (FBCC) | ❑ Marketing (MiSU, NDSU, RC, UJ, UM, UND, VCSU) | |
| **Marketing Research** | ❑ Marketing Management (DCB, NDSCS, LRSC, RC, WSC) | ❑ Marketing (MiSU, NDSU, RC, UJ, UM, UND, VCSU) | |
| **Merchandising** | ❑ Marketing Management (DCB, NDSCS, LRSC, RC, WSC)<br>❑ Art Marketing (UTTC)<br>❑ Merchandising (NDSU) | ❑ Marketing (MiSU, NDSU, RC, UJ, UM, UND, VCSU)<br>❑ Operations and Supply Chain Management (UND) | ❑ Merchandising (NDSU) |
| **Professional Selling** | ❑ Professional Selling (NDSU)<br>❑ Customer Relationship Management (VCSU) | | |

**North Dakota Postsecondary Institutions**

| | | |
|---|---|---|
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **RC** | Rasmussen College | www.rasmussen.edu |
| **UTTC** | United Tribes Technical College | www.uttc.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

## Justin Welk • Fargo North High School

**Justin** took Marketing classes during high school and found that he enjoyed the level of engagement and energy in the classes and his local DECA chapter. He realized that whenever he was working on Marketing assignments or projects, "It didn't feel like work, and knew that I could have an impact on a larger scale."

As goalie for the Fargo North Spartans hockey team, there were significant demands on Justin's time. While in high school, he continued with hockey, but focused his time and energy outside the locker room on DECA. He was chapter officer at Fargo North, ND State DECA President, and continues to be involved on both the state and national levels of DECA.

Justin earned a Bachelor of Science degree in Marketing from NDSU, and started work at Sundog Interactive. The company is headquartered in Fargo and has offices in Denver and Minneapolis. "Sundog's mission is to make our clients heroes. We're always striving to be a place that inspires innovation and imagination, both for our clients and our team members."

He started as Project Manager on the Client Services team. His work included managing timelines, budgets, and the delivery of quality work. During the two years in this position, Justin is proud that the relationship with the client evolved in a very positive manner.

He is currently working as the Talent Coordinator. This position involves all aspects of the organization development, including talent management, training and change leadership. Justin helps to develop and train staff and has found that the Human Resources function is a strategic business partner in the company's success. The challenges of his work include helping people to understand the vision and mission of Sundog, continued expansion of the Human Resources function within the company, and supporting the growth of staff.

Justin says that being a North Dakotan defines who he is today. "There is a lot of excitement about the state and young people are energized to put North Dakota on the map." He hopes students will find a way to get involved in Career and Technical Student Organizations. He suggests the following: "Take CTE courses, keep an open mind about the opportunities within the CTSO organization (running for office, traveling, writing business plans, etc.), ask questions of the advisors and members, and let the value of the organization and related leadership opportunities be part of your future."

NORTH DAKOTA DECA

# SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

**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.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| **Aerospace Engineering and Operations Technicians** Operate, install, calibrate, and maintain integrated computer/communications systems, consoles, simulators, and other data acquisition, test, and measurement instruments and equipment, which are used to launch, track, position, and evaluate air and space vehicles. May record and interpret test data. | Altitude Chamber Technician; Flight Data Technician; Wind Tunnel Technician | 9,900 ↓<br>37/13 →<br>$42,180-$57,900 | Realistic | Engineering and operations technicians with an associate's degree in engineering technology are preferred by employers. Prospective technicians also may earn certificates or diplomas offered by vocational or technical schools. |
| **Mechanical Engineering Technicians** Apply theory and principles of mechanical engineering to modify, develop, test, or calibrate machinery and equipment under direction of engineering staff or physical scientists. | Gyroscope Engineering Technician; Heat Transfer Technician; Optomechanical Technician | 47,500 ↘<br>324/154 ↑<br>$40,460-$54,050 | Realistic | Although it may be possible to qualify for certain engineering technician jobs without formal training, most employers prefer to hire someone with at least an associate's degree in engineering technology. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Atmospheric and Space Scientists** Investigate atmospheric phenomena and interpret meteorological data, gathered by surface and air stations, satellites, and radar to prepare reports and forecasts for public and other uses. Includes weather analysts and forecasters whose functions require the detailed knowledge of meteorology. | Atmospheric Chemist; Climatologist; Hurricane Tracker; Meteorologist | 11,100 →<br>46/13 ↘<br>$59,430-$85,200 | Investigative | Atmospheric scientists need a bachelor's degree in atmospheric science or a closely related field for most positions. Those who work in research usually need a master's degree or a Ph.D. |
| E **Chemical Engineer (M)** Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering. | Fuels Engineer; Plastics Engineer; Polymerization Engineer | 33,300 ↘<br>74/41 ↑<br>$61,640-$91,250 | Investigative | A bachelor's degree is required; however, some employers require a master's degree. Many are hired by manufacturing industries, primarily in chemical and petroleum refining. Also employed by consulting firms. Must be licensed. |
| **Forensic Science Technicians** Collect, identify, classify, and analyze physical evidence related to criminal investigations. Perform tests on weapons or substances, such as fiber, hair, and tissue to determine significance to investigation. May testify as expert witnesses on evidence or crime laboratory techniques. May serve as specialists in area of expertise, such as ballistics, fingerprinting, handwriting, or biochemistry. | Ballistics Expert; Crime Scene Technician; Trace Evidence Technician | 12,900 ↘<br>21/11 →<br>N/A | Investigative | Forensic science technicians typically need at least a bachelor's degree in the natural sciences, such as chemistry or biology. On-the-job training is usually required for both those who investigate crime scenes and those who work in labs. |
| E **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. | Efficiency Engineer; Manufacturing Engineer; Packaging Engineer; Production Engineer | 223,300 ↘<br>729/443 ↑<br>$46,530-$75,300 | Investigative | Some employers prefer applicants with a graduate degree. Over two-thirds of the industrial engineers work in the manufacturing industries. Industrial engineers are more widely distributed among industries than other engineers. Must be licensed. |
| **Mechanical Engineer** Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment such as centralized heat, gas, water, and steam systems. | Combustion Engineer; Engine Designer; Heating and Cooling Systems Engineer; Tool and Die Engineer | 258,100 ↘<br>545/297 ↗<br>$46,130-$73,940 | Realistic | Most mechanical engineers are employed in manufacturing. Some work for government agencies, educational institutions, and private firms. Drafting and design experience helpful. May be licensed. |
| **Microbiologists** Investigate the growth, structure, development, and other characteristics of microscopic organisms, such as bacteria, algae, or fungi. Includes medical microbiologists who study the relationship between organisms and disease or the effects of antibiotics on microorganisms. | Bacteriologist; Public Health Microbiologist; Virologist | 20,100 ↘<br>39/16 →<br>$42,190-$51,100 | Investigative | A bachelor's degree in microbiology or a closely related field is needed for entry-level microbiologist jobs. A Ph.D. is typically needed to carry out independent research and to work in colleges and universities. |
| E **Mining and Geological Engineers** Conduct sub-surface surveys to identify the characteristics of potential land or mining development sites. May specify the ground support systems, processes and equipment for safe, economical, and environmentally sound extraction or underground construction activities. May inspect areas for unsafe geological conditions, equipment, and working conditions. May design, implement, and coordinate mine safety programs. | Geophysical Engineer; Mineral Engineer; Seismic Engineer | 7,900 →<br>80/52 ↑<br>$62,520-$90,540 | Investigative | A bachelor's degree from an accredited engineering program is required to become a mining or geological engineer. However, work as a credentialed professional engineer requires licensure. Requirements for licensure vary by state but generally require passing two exams. |
| E **Petroleum Engineers (M)** Devise methods to improve oil and gas extraction and production and determine the need for new or modified tool designs. Oversee drilling and offer technical advice. | Natural Gas Engineer; Oil Drilling Engineer; Oil Exploration Engineer | 38,500 ↗<br>446/442 ↑<br>$76,170-$121,530 | Investigative | Employers generally prefer applicants with a graduate degree. Employed by federal and private research laboratories, universities, and power companies. |
| **Statisticians** Develop or apply mathematical or statistical theory and methods to collect, organize, interpret, and summarize numerical data to provide usable information. May specialize in fields such as bio-statistics, agricultural statistics, business statistics, or economic statistics. Includes mathematical and survey statisticians. | Biostatistician; Statistical Analyst; Time Study Statistician | 27,600 ↑<br>89/46 ↗<br>$44,680-$63,810 | Conventional | Statisticians typically need a graduate degree in statistics or mathematics. However, there are an increasing number of positions available for those with only a bachelor's degree. |
| **Zoologists and Wildlife Biologists** Study the origins, behavior, diseases, genetics, and life processes of animals and wildlife. May specialize in wildlife research and management. May collect and analyze biological data to determine the environmental effects of present and potential use of land and water habitats. | Herpetologist; Ichthyologist; Marine Biologist; Ornithologist | 20,100 ↘<br>65/22 ↘<br>$46,730-$63,540 | Investigative | A bachelor's degree or a graduate degree is required. May sell, inspect, conduct research, or teach. Nationally over one-half are hired by the government. A doctorate is generally required for college teaching and independent research. |

# SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

## North Dakota STEM Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Engineering & Technology** | ❑ Architectural Drafting & Estimating Technology (NDSCS)<br>❑ Engineering Technology (BSC, NDSCS, WSC)<br>❑ Land Surveying and Civil Engineering (NDSCS)<br>❑ Mechatronics Technology (NDSCS)<br>❑ Microelectronics Technology (NDSCS)<br>❑ Nuclear Power Technology (BSC)<br>❑ Petroleum Production (BSC)<br>❑ Pre-Engineering (CCCC, DCB, FBCC, SBC, TMCC)<br>❑ Simulator Technology (LRSC) | ❑ Civil Engineering (NDSU, UND)<br>❑ Engineering Science (UM)<br>❑ Mechanical Engineering (NDSU, UND)<br>❑ Petroleum Engineering (UND)<br>❑ Physics/Engineering (NDSU)<br>❑ Applied Math/Pre-Engineering (UJ)<br>❑ Chemical Engineering (UND)<br>❑ Computer Engineering (NDSU)<br>❑ Electrical Engineering (NDSU, UND)<br>❑ Geological Engineering (UND) | ❑ Civil Engineering (UND)<br>❑ Mechanical Engineering (NDSU)<br>❑ Petroleum Engineering (UND)<br>❑ Sustainable Energy Engineering (UND)<br>❑ Chemical Engineering (UND)<br>❑ Electrical/Computer Engineering (NDSU, UND)<br>❑ Geological Engineering (UND)<br>❑ Environmental Engineering (NDSU)<br>❑ Aerospace Sciences (UND) |
| **Science & Mathematics** | ❑ Biology (BSC, DCB, TMCC, WSC)<br>❑ Chemistry (BSC, DCB, NDSCS, TMCC, WSC)<br>❑ Nanoscience Technology (NDSCS)<br>❑ Natural Science (NDSCS)<br>❑ Science (FBCC)<br>❑ Mathematics (BSC, DCB, FBCC, NDSCS, TMCC, WSC)<br>❑ Physical Science (DSU, NDSCS)<br>❑ Physics (BSC, WSC)<br>❑ Environmental Science (TMCC)<br>❑ Geography (TMCC)<br>❑ Statistics (NDSU)<br>❑ Technical Studies (BSC) | ❑ Anthropology (NDSU, UND)<br>❑ Atmospheric Sciences (UND)<br>❑ Biology/Biological Science (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Zoology (NDSU)<br>❑ Botany (NDSU)<br>❑ Environmental Geoscience (UND)<br>❑ Chemistry (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Statistics (NDSU)<br>❑ Geology (DSU, MiSU, NDSU, UND)<br>❑ Mathematics (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU)<br>❑ Horticulture (NDSU)<br>❑ Physics (NDSU, UND)<br>❑ Microbiology (NDSU) | ❑ Anthropology (NDSU)<br>❑ Atmospheric Sciences (UND)<br>❑ Biology/Biological Science (NDSU, UND)<br>❑ Zoology (NDSU)<br>❑ Botany (NDSU)<br>❑ Chemistry (NDSU, UND)<br>❑ Coatings and Polymeric Materials (NDSU)<br>❑ Entomology (NDSU)<br>❑ Geography (UND)<br>❑ Materials and Nanotechnology (NDSU)<br>❑ Space Studies (UND)<br>❑ Statistics (NDSU)<br>❑ Geology (UND)<br>❑ Mathematics (NDSU, UND)<br>❑ Horticulture (NDSU)<br>❑ Physics (NDSU, UND)<br>❑ Microbiology (NDSU) |

## North Dakota Postsecondary Institutions

| | | |
|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu |
| **MaSU** | Mayville State University | www.mayvillestate.edu |
| **MiSU** | Minot State University | www.minotstateu.edu |
| **NDSCS** | ND State College of Science | www.ndscs.edu |
| **NDSU** | ND State University | www.ndsu.edu |
| **SBC** | Sitting Bull College | www.sittingbull.edu |
| **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **UJ** | University of Jamestown | www.uj.edu |
| **UM** | University of Mary | www.umary.edu |
| **UND** | University of North Dakota | www.und.edu |
| **VCSU** | Valley City State University | www.vcsu.edu |
| **WSC** | Williston State College | www.willistonstate.edu |

## Tasha Steinbach • Dickinson High School

**Tasha's** college planning was strongly influenced through her early involvement in the Technology Students Association (TSA). Dickinson H.S. technology teachers were very supportive and provided a lot of encouragement when she served as state treasurer. She also competed in five state and national conferences. "If it wasn't for the skills learned through the TSA competitions, I am almost certain that I would have chosen a different career path."

She enjoys math and science and enrolled at NDSU to study civil engineering with a math minor. After transferring to Southwestern Oklahoma State University, Tasha earned a Bachelor's of Science degree in Industrial Technology with minors in math and environmental technology.

An internship at SportChassis, LLC allowed Tasha to apply her learning as an engineering student to the workplace. She helped the main engineer and was responsible for producing design and standards manuals with drawings, and was also involved in new parts design.

Tasha is currently an Engineering Technician at KLJ in Dickinson. KLJ has services available in multiple areas, and most of her work has been in the Oil Field Services sector. She primarily works on road and pad designs along with completing the required permits needed by clients.

"One of the biggest challenges I face is learning new technologies and best practices for completing work assignments. One small mistake in the design can cost either KLJ or the client a lot of money." Seeing projects evolve from the design phase through final construction, and knowing she was a part of the process is very gratifying to Tasha.

"I came back at an exciting time in North Dakota's history, and I'm proud to be a part of our economic development." Tasha is giving back to her home state and enjoys knowing that she has been involved in several projects that will be around for many years.

# TRANSPORTATION, DISTRIBUTION & LOGISTICS

**Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.**

| Occupational Title/Description | Related Occupations | Nat'l Employment<br>ND Employment/<br>Total Openings<br>ND Earnings | Holland Type<br>Rating | Hiring Practices |
|---|---|---|---|---|
| **Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree** | | | | |
| E **Diesel Engine Specialists/Bus and Truck Mechanics** Diagnose, adjust, repair, or overhaul buses and trucks, or maintain and repair any type of diesel engines. Includes mechanics working primarily with automobile or marine diesel engines. | Biodiesel Engine Specialist; Marine Diesel Technician; School Bus Mechanic; Tractor Trailer Mechanic | 250,800 ↘<br>2,089/556 ↘<br>$35,870-$49,140 | Realistic | High school graduation is required and career and technical education or apprenticeship training preferred by employers. Hired by construction companies, bakeries, dairies, schools, and government. |
| **Aircraft Mechanics (M)** Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems. Includes helicopter and aircraft engine specialists. | Aircraft Engine Specialist; Airframe Mechanic; Flight Test Mechanic | 121,700 ↘<br>221/154 ↑<br>$37,400-$51,570 | Realistic | Graduation from an FAA approved school is required by all employers. Certification required. Hired by airlines or federal government. |
| **Automotive Service Technicians (M)** Diagnose, adjust, repair, or overhaul automotive vehicles. Test vehicle components and systems, using equipment such as infrared engine analyzers, compression gauges and computerized diagnostic devices. | Auto Transmission Specialist; Automotive Brake Technician; Automotive Fuel Injection Servicer; Hybrid Car Mechanic | 701,100 ↘<br>2,842/934 ↘<br>$27,650-$40,360 | Realistic | Preference given to an apprenticeship or career and technical education trained applicant. Hired by repair shops, government and supply shops. May be self-employed. |
| **Avionics Technicians** Install, inspect, test, adjust, or repair avionics equipment, such as radar, radio, navigation, and missile control systems in aircraft or space vehicles. | Aircraft Electrician; Aircraft Instrument Mechanic; Automatic Pilot Mechanic | 17,100 ↘<br>20/8 ↗<br>N/A | Realistic | Most aircraft and avionics equipment mechanics and technicians learn their trade at an FAA-approved Aviation Maintenance Technician School. Others enter with a high school education or equivalent and are trained on the job. Some workers enter the occupation after receiving training in the military. Aircraft mechanics and avionics technicians are typically certified by the FAA. |
| **Cargo and Freight Agents** Expedite and route movement of incoming and outgoing cargo and freight shipments in airline, train, and trucking terminals, and shipping docks. Take orders from customers and arrange pickup of freight and cargo for delivery to loading platform. Prepare and examine bills of lading to determine shipping charges and tariffs. | Cargo Router; Freight Shipping Agent; Ramp Service Agent | 79,500 →<br>211/164 ↑<br>$32,590-$39,940 | Conventional | Generally, hand laborers and material movers need no work experience or minimum level of education. Employers require only that applicants be physically able to do the work. |
| **Commercial Pilots** Pilot and navigate the flight of fixed-winged aircraft on nonscheduled air carrier routes, or helicopters. Requires Commercial Pilot certificate. Includes charter pilots with similar certification, and air ambulance and air tour pilots. | Aerial Crop Duster; Charter Pilot (Commercial Pilot Certificate Required); Flight Instructor (Commercial Pilots); Helicopter Pilot | 37,600 ↘<br>280/133 ↗<br>$39,440-$58,690 | Realistic | Pilots, other than private pilots, must have a commercial license from the FAA which includes at least 250 hours of flight experience. Must pass a strict physical exam, have 20/20 vision, good hearing, etc. Very competitive occupation. Must be certified. |
| **Couriers and Messengers** Pick up and deliver messages, documents, packages, and other items between offices or departments within an establishment or directly to other business concerns, traveling by foot, bicycle, motorcycle, automobile, or public conveyance. | Bicycle Messenger; Laboratory Courier; Office Runner | 98,200 ↓<br>113/14 ↓<br>$16,890-$22,530 | Realistic | It is typical to need high school diploma and learn their skills on the job. Ability to deliver packages in a timely manner is essential. |
| E **Crane and Tower Operators** Operate mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions. | Boom Crane Operator; Cherry Picker Operator; Coal Tower Operator | 43,800 ↗<br>331/216 ↑<br>$37,730-$54,890 | Realistic | Education and training requirements vary by the type of job. Crane operators and excavating machine operators usually have several years of experience in related occupations. |
| **Electrical and Electronics Installers and Repairers, Transportation Equipment** Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment. | Locomotive Electrician; Marine Electronics Repairer | 15,900 ↘<br>76/27 →<br>$36,920-$51,740 | Realistic | Most electrical and electronics installers and repairers obtain specialized training at a technical college. Gaining voluntary certification is common and can be useful in getting a job. |
| **Freight, Stock and Material Handlers (M)** Manually move freight, stock, or other materials or perform other general labor. Includes all manual laborers not elsewhere classified. | Cargo Handler; Wharf Labor | 2,197,300 →<br>5,924/2,639 →<br>$21,070-$31,380 | Realistic | Hand laborers and material movers need no work experience or minimum level of education. Employers require only that applicants be physically able to do the work. |
| E **Industrial Truck and Tractor Operators** Operate industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. | Forklift Operator; Stacker Operator | 508,600 ↓<br>1,249/374 ↘<br>$28,050-$38,660 | Realistic | Heavy and tractor-trailer truck drivers usually have a high school diploma and attend a professional truck-driving school. They must have a commercial driver's license (CDL). |
| **Radio, Cellular, and Tower Equipment Installers and Repairers** Repair, install or maintain mobile or stationary radio transmitting, broadcasting, and receiving equipment, and two-way radio communications systems used in cellular telecommunications, mobile broadband, ship-to-shore, aircraft-to-ground communications, and radio equipment in service and emergency vehicles. May test and analyze network coverage. | Radio Frequency Technician; Radio Mechanic; Two-Way Radio Technician | 16,400 ↘<br>79/24 ↗<br>$38,850-$49,250 | Realistic | To become proficient, most line installers and repairers require technical instruction and long-term on-the-job training. Apprenticeships are common. |
| **Shipping, Receiving, and Traffic Clerks** Verify and maintain records on incoming and outgoing shipments. Prepare items for shipment. Duties include assembling, addressing, stamping, and shipping merchandise or material; receiving, unpacking, verifying and recording incoming merchandise or material; and arranging for the transportation of products. | Incoming Freight Clerk; Route Delivery Clerk; Store Receiving Clerk | 695,500 ↘<br>1,437/541 →<br>$22,790-$31,020 | Conventional | High school graduate and some experience is often required. Must be able to write legibly and keep orderly records. Willingness to work at repetitive tasks and dependability are qualities employers look for. |

# TRANSPORTATION, DISTRIBUTION & LOGISTICS

| Postsecondary Programs – High School Diploma, Certificate, or Associate's Degree *(continued)* | | | | |
|---|---|---|---|---|
| **Supervisors of Helpers, Laborers, and Material Movers** Directly supervise and coordinate the activities of helpers, laborers, or material movers. | Material Handling Crew Supervisor; Warehouse Supervisor | 171,600 ↘<br>663/287 →<br>$31,550-$48,500 | Enterprising | Supervisors have experience as hand laborers and material movers. On-the-job training is typical and employers require only that applicants be physically able to do the work. |
| **Telecommunications Line Installers and Repairers** Install and repair telecommunications cable, including fiber optics. | Cable Television Installer; FIOS Line Installer; Telephone Cable Splicer | 134,900 ↘<br>355/102 ↘<br>$40,820-$59,370 | Realistic | Good eyesight and color discrimination necessary. Mechanical, electronic, and computer background essential. Most are hired by telephone and cable TV companies. |
| **Transportation Security Screeners** Conduct screening of passengers, baggage, or cargo to ensure compliance with Transportation Security Administration (TSA) regulations. May operate basic security equipment such as x-ray machines and hand wands at screening checkpoints. | Airport Baggage Screener, Airport Security Screener, Transportation Security Administration (TSA) Screener | 50,800 ↘<br>166/61 →<br>$31,000-$35,760 | Realistic | Transportation security jobs require a minimum of a high school diploma. Additional experience with security and video surveillance is helpful. Most states require guards to be registered with the state, especially if they carry a firearm. |
| **Transportation, Storage, and Distribution Managers (M)** Plan, direct, or coordinate transportation, storage, or distribution activities in accordance with organizational policies and applicable government laws or regulations. Includes logistics managers. | Distribution Center Manager; Traffic Safety Administrator; Warehouse Manager | 105,200 ↘<br>474/145 ↘<br>$60,410-$84,450 | Enterprising | Usually requires at least a two-year degree, often a bachelor's, and 3-5 years' experience in logistics. Knowledge of Microsoft Office and a high comfort level with technology are helpful. |
| **Postsecondary Programs – Bachelor's Degree or Higher** | | | | |
| **Logisticians** Analyze and coordinate the logistical functions of a firm or organization. Responsible for the entire life cycle of a product, including acquisition, distribution, internal allocation, delivery, and final disposal of resources. | Logistics Analyst; Logistics Planner; Logistics Specialist | 125,900 ↗<br>212/95 ↑<br>$41,320-$59,550 | Enterprising | Although an associate's degree may be sufficient for some logistician jobs, a bachelor's degree is typically required for most positions. Industry certification and work experience in a related field can be helpful for jobseekers. |

## North Dakota Transportation, Distribution & Logistics Related Postsecondary Programs

| Pathway | Associate's Degree or Less | Bachelor's Degree | Master's Degree or More |
|---|---|---|---|
| **Facility & Mobile Equipment Maintenance** | ❑ Auto Technology (BJCC, BSC, CCCC, LRSC, NDSCS, UTTC)<br>❑ Electronics & Telecommunications Technology (BSC)<br>❑ Facilities Maintenance (BJCC)<br>❑ Diesel Technology (NDSCS, WSC) | | |
| **Health, Safety & Environmental Management** | ❑ Environmental Technology/Science (FBCC, SBC, UTTC, WSC)<br>❑ Environmental Public Health (TMCC) | ❑ Environmental Science (DSU, FBCC, SBC)<br>❑ Environmental Health (DSU) | ❑ Environmental Management (UND) |
| **Logistics Planning & Management Services** | ❑ Information Processing Specialist (BSC)<br>❑ Computerized Office Management (DCB)<br>❑ Management Information Systems (NDSCS) | ❑ Business Process Management (VCSU)<br>❑ Computer Technology Management (DSU)<br>❑ Management Information Systems (MiSU, NDSU)<br>❑ Operations and Supply Chain Management (UND) | ❑ Managerial Logistics (NDSU)<br>❑ Project Management (UM) |
| **Sales & Service** | ❑ Marketing Management (DCB, LRSC, NDSCS, RC, WSC)<br>❑ Marketing Entrepreneurship (FBCC)<br>❑ Professional Selling (NDSU)<br>❑ Customer Relationship Management (VCSU) | ❑ Marketing (MiSU, NDSU, RC, UJ, UM, UND, VCSU)<br>❑ Operations and Supply Chain Management (UND, RC) | |
| **Transportation Operations** | ❑ Airline Transport Pilot (FFS)<br>❑ CDL/Heavy Equipment Operator (SBC, TMCC, UTTC)<br>❑ Certified Flight Instructor (FFS, GFKFS)<br>❑ Commercial Pilot (EATC, FFS, GFKFS)<br>❑ Instrumental Rating (EATC)<br>❑ Multi-Engine Rating (EATC)<br>❑ Private Pilot (EATC, FFS, GFKFS, MAC)<br>❑ Recreational/Sport Pilot (EATC, FFS) | ❑ Aeronautics/Commercial Aviation (UND)<br>❑ Airport/Aviation Mgt. (UND)<br>❑ Aeronautics/Air Traffic Controller (UND)<br>❑ Aeronautics/Aviation Technology Mgmt. (UND) | ❑ Aviation (UND)<br>❑ Aerospace Sciences (UND) |
| **Transportation Systems/ Infrastructure Planning, Management & Regulation** | | ❑ Airport/Aviation Mgt. (UND)<br>❑ Aeronautics/Air Traffic Controller (UND)<br>❑ Aeronautics/Aviation Technology Mgmt. (UND)<br>❑ Operations & Supply Chain Management (RC, UND) | ❑ Transportation and Urban Systems (NDSU) |
| **Warehousing & Distribution Center Operations** | ❑ Management (BSC)<br>❑ Management Information Systems (NDSCS) | ❑ Business Process Management (VCSU)<br>❑ Management Information Systems (MiSU, NDSU) | |

## North Dakota Postsecondary Institutions

| | | | | | |
|---|---|---|---|---|---|
| **BSC** | Bismarck State College | www.bismarckstate.edu | **MiSU** | Minot State University | www.minotstateu.edu |
| **BJCC** | Burdick Job Corps Center | http://quentinnburdick.jobcorps.gov | **NDSCS** | ND State College of Science | www.ndscs.edu |
| **CCCC** | Cankdeska Cikana Community College | www.littlehoop.edu | **NDSU** | ND State University | www.ndsu.edu |
| **DCB** | Dakota College at Bottineau | www.dakotacollege.edu | **RC** | Rasmussen College | www.rasmussen.edu |
| **DSU** | Dickinson State University | www.dickinsonstate.edu | **SBC** | Sitting Bull College | www.sittingbull.edu |
| **EATC** | Executive Air Taxi Corporation | www.executive-air.com | **TMCC** | Turtle Mountain Community College | www.tm.edu |
| **FBCC** | Fort Berthold Community College | www.fortbertholdcc.edu | **UTTC** | United Tribes Technical College | www.uttc.edu |
| **FFS** | Fargo Flight School | www.fargojet.com/school | **UM** | University of Mary | www.umary.edu |
| **GFKFS** | GFK Flight Support | www.flygfk.com | **UND** | University of North Dakota | www.und.edu |
| **LRSC** | Lake Region State College | www.lrsc.edu | **VCSU** | Valley City State University | www.vcsu.edu |
| **MAC** | Minot Aero Center | http://minotaerocenter.com | **WSC** | Williston State College | www.willistonstate.edu |

# MONEY FOR COLLEGE

FAFSA is the first step. FAFSA stands for Free Application for Federal Student Aid, and you complete it between January and April of your senior year.

- ❑ Research tuition, room and board expenses. They are different for each school, so budget should be considered when making a decision on where you want to attend.
- ❑ Research and apply for scholarships. These aren't linked to the FAFSA (Free Application for Federal Student Aid), so you can start applying in the fall of your senior year.
- ❑ Complete the FAFSA as soon after January 1 as possible so you can get as much state and federal aid as possible. For sure, complete the FAFSA by April 15. You'll find it at **fafsa.gov**. Remember, it's FREE!

## CONTACT US!

Bank of North Dakota's
College Planning Center

1200 Memorial Highway
Bismarck, ND 58506

Questions? Email
**bnd@nd.gov** or call
1.800.554.2717

## 4 WAYS TO PAY FOR COLLEGE

1. **Scholarships**
   Read the College Planning Center's tips on writing scholarship applications and resources to help you know where to apply.
2. **Grants**
   Grants are money that doesn't need to be repaid. You'll find out if you receive them after you complete the FAFSA.
3. **Work-study**
   Ask the admissions department about working part-time in a work-study program.
4. **Student loans**
   Students and parents may borrow money to pay for school. Education loans come in four major categories: Federal Direct student loans, Federal PLUS loans, DEAL – the North Dakota state-sponsored student loan, and other alternative (private) loans.

# STUDENT LOANS ARE NOT FREE MONEY!

You start paying student loans with interest six months after you finish college. That may seem like a long time away now, but it will be here before you know it. Too many people find themselves regretting the amount of student loans they need to repay so read on and don't become one of them.

The average North Dakota student graduates with $28,000 in student loans.* The average starting salary for a new college graduate in 2012 was $44,455. We are going to assume that you just landed that job making $44,455 per year. With deductions for taxes (Federal, State, FICA and Medicare), your monthly take home pay would be approximately $2,923, or $35,076 annually.**

**2014 college graduate budget**

| Item | % of monthly take home income | Expense |
|---|---|---|
| Student loan payment (Assuming $23,300 in loans at 4.66% interest) | 8% | $234 |
| Housing (Rent, mortgage, condo maintenance fee, furniture, household items) | 30% | $878 |
| Utilities (Phone, electricity, gas) | 5% | $146 |
| Credit cards | 5% | $146 |
| Food (Groceries, eating out) | 10% | $292 |
| Transportation (Car payments, parking, insurance, gas, maintenance) | 15% | $439 |
| Clothing | 5% | $146 |
| Insurance (Home, life, medical, dental) | 5% | $146 |
| Retirement investments (10% of gross monthly income each month) | 10% | $292 |
| Other savings and investments | 2% | $58 |
| Personal expenses (Entertainment, vacations, personal care, pet care, gifts) | 5% | $146 |
| **Total** | **100%** | **$2,923** |

*Federal Reserve Bank of St. Louis http://www.washingtonpost.com/blogs/govbeat/wp/2014/05/08/map-where-the-average-student-loan-burden-is-largest **National Association of Colleges and Employer
**http://www.collegeboard.com/prod_downloads/highered/res/cc_tips/BudgetGrad05.pdf.

## CUT COLLEGE COSTS!

- Take dual credit courses in high school.
- Research careers you may be interested in so you don't need to switch majors as often in college.
- Community colleges are usually less expensive than universities, so they may be a good option.
- Living on campus is usually less expensive than living off campus.
- Consider the tuition, room and board expenses for each college when choosing the school you'd like to attend.
- Start saving now if you haven't already.
- Make money during the school year at a work-study job.
- Apply for scholarships.
- Control your recreation expenses – you may not be able to take a spring break trip!

BND COLLEGE PLANNING CENTER

banknd.nd.gov

# Adult Education

Adult Education provides free classes and programs that help adults over the age of 16 obtain basic academic and educational skills needed to be productive workers, family members, and citizens. Adult education provides a second opportunity to improve academic and life skills.

### *Each Adult Learning Center provides instruction for*

- reading/language arts, math, science, social studies, keyboarding, and computer literacy;
- English as a Second Language (ESL) for New Americans and citizenship preparation;
- the GED exam; and,
- college and career readiness.

## GED...*get it now!*

The US Census data estimates more than 65,000 individuals in North Dakota are without a high school diploma. Individuals who receive a GED will earn approximately $10,000 more annually than those who do not. This in turn, improves an individual's economic status, spending patterns and tax contributions. North Dakota needs every able body in the workforce – a GED can provide you the skills to make a difference and launch a new career. Earn your GED now and reap the rewards. Students can now take the GED by computer and receive instant results.

Visit ***www.dpi.state.nd.us/adulted/index.shtm*** for more information.

## ADULT LEARNING CENTERS

**Belcourt**
Belcourt Adult Learning Center
Turtle Mountain Community College
701-477-7913
***www.tm.edu***

**Bismarck**
Bismarck Adult Learning Center
Bismarck State College Campus
701-323-4530
***www.bismarckschools.org/adultlearning***

**Devils Lake**
Devils Lake Adult Learning Center
UND-Lake Region
701-662-1568

**Dickinson**
Dickinson Adult Learning Center
Dickinson Public Schools
701-456-0008
***www.dickinson.k12.nd.us***

**Fargo**
Fargo Adult Learning Center
Fargo Public Schools
701-446-2806
***www.fargo.k12.nd.us***

**Fort Totten**
CCCC Adult Education Program
Cankdeska Cikana Community College
701-766-1377

**Grafton**
Grafton Adult Learning Center
North Valley Vo-Tech Center
701-352-3705 ext. 412
***www.northvalley.k12.nd.us***

**Grand Forks**
Grand Forks Adult Learning Center
Grand Forks Public Schools
701-795-2777
***www.gfschools.org/pages/gfschools***

**Jamestown**
Jamestown Adult Learning Center
James Valley Career & Technical Center
701-252-8841

**Minot**
Minot Adult Learning Center
701-857-4488
***www.alc.minot.k12.nd.us/pages/MinotALC***

**New Town**
FBCC Adult Education Program
Fort Berthold Community College
701-627-4738 Ext. 258

**Valley City**
Valley City Adult Learning Center
Valley City Area Vo-Tech Center
701-845-0256

**Wahpeton**
Wahpeton Adult Education Program
ND State College of Science
701-671-2184

**West Fargo**
West Fargo Adult Education Program
West Fargo Public Schools
701-356-2008

**Williston**
Williston Adult Learning Center
UND-Williston
701-572-5886
***www.willistonstate.edu/Classes/Adult-Learning-Center.html***

# youth FORWARD

## CONNECTING YOUTH TO OPPORTUNITIES IN NORTH DAKOTA

- CAREER CONVERSATIONS
- INTERNSHIP OPPORTUNITIES
- EDUCATIONAL RESOURCES

/NDYouthForward
@NDYouthForward
www.NDYouthForward.com

NORTH DAKOTA UNIVERSITY SYSTEM

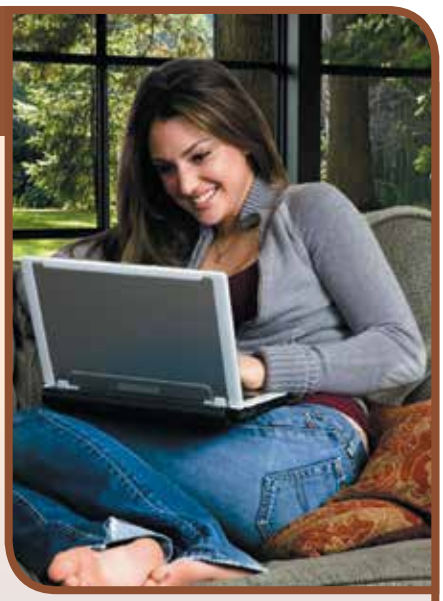
## Distance Education Courses

**Access to higher education is *EASIER THAN EVER* with the North Dakota University System (NDUS).**

**Distance learning opportunities online or through our interactive video network provide you the freedom to choose courses from several campuses while completing just one application.**

**NDUS schools also offer numerous individual online courses for students who prefer a mix of on-campus and online courses.**

# TAKE CLASSES AT HOME



***Would you like to complete Middle and High School classes at your own speed, at a location you select, and at a time that works best for you?***

## You can! Here's how.

North Dakota Center for Distance Education (NDCDE) offers over 200 fully-accredited (AdvancED), online courses to middle and high school students that:

- are self-paced (you complete lessons at your own speed),
- can be enrolled in anytime (all twelve months of the year),
- include credit recovery and advanced college placement (AP) courses, and
- have teachers assigned to you who are ready to help you one-on-one via phone, Skype, text, email, virtual classroom, facebook, twitter, or whatever means works for you.

And if you want, you can even earn your high school diploma at NDCDE. *Many North Dakota students do!*

**For more information, contact your school counselor or: North Dakota Center for Distance Education, Phone 701-298-4830**

***www.NDCDE.org***

# Why Choose a NDUS School?

With five colleges and six universities, the North Dakota University System (NDUS) offers the education that's right for you. From single courses to one-year technical programs to professional degrees in law, medicine and pharmacy – the NDUS will help prepare you to meet your career goals.

## At North Dakota colleges and universities, it's all about *YOU!*

### NDUS institutions offer:

- **Quality Programs:** From welding to web design, engineering to English, anatomy to accounting – the NDUS offers more than 700 programs.
- **Regionally Competitive Cost:** Tuition and fees are competitively priced when compared to regional and national counterparts. Plus, it won't break the bank to go home for a weekend.
- **Development Opportunities:** The faculty and staff at the NDUS want you to be personally and professionally successful. They are committed to challenging and encouraging you to meet your potential.
- **Broad Perspective Beyond the Books:** The NDUS fields many varsity and intramural teams. Try student government, music or one of the other clubs and student organizations. Add in other opportunities to pursue your interests, and you've got a great experience.
- **Life in a Global Community:** Join a sharing community of many nations and diverse backgrounds. Opportunities to network and create partnerships will take you beyond your college development.

## How do I know which school is the right fit for me?

***Here are some things that can help get you started:***

- Choose the schools that best fit your educational interests by visiting ***www.NDChoose.com/programs***.
- Many students transfer to a 4-year institution after earning 24 credits at a NDUS community college.
- Visit the campus! While there, make it a point to talk to students and ask questions.
- Compare your financial aid options at each institution to make sure you're making the most of your educational investment.

# NDUS Admission Requirements

You CAN go to college if you have a high school diploma or GED! Check out the admission requirements below to help you find the school that is the best fit for you and your goals.

## 2-year college admission requirements:

- A high school graduate may be admitted to any two-year campus. Each campus may have requirements that are in addition to the general admission requirement.
- GED tests may be used to satisfy the high school graduation requirement.
- For technical programs, high school graduation is recommended. Applicants 17 years of age or older may be admitted if program standards are met.

## 4-year college admission requirements:

- 4 units of English
- 3 units of mathematics (Algebra I and above)
- 3 units of lab science (including at least two in biology, chemistry, physics or physical science)
- 3 units of social studies (not including consumer education, cooperative marketing, orientation to social science, or marriage/family)

Additional courses may be required before you can be admitted to some programs.

Students who do not meet the admission requirements for a 4-year university are welcome to attend one of the five 2-year colleges. Upon satisfactory completion of 24 credits, the student will be eligible to transfer to a 4-year university.

# Checklist for Admission to a College or University

- Consider more than one campus. ***www.NDChoose.com*** is a great place to start.
- Take a look at each campus's online course catalogues.
- Make appointments to tour the selected campuses (contact admissions office).
- Take the ACT–go to ***www.actstudent.org***.
- Remember to apply by admission deadlines.
- As soon as you can, complete the FAFSA form to apply for federal and state grants and loans.
- Weigh your options, including financial aid packages, and select a college or university.

## Why Go To COLLEGE

### *Earn more.*

***Americans with a bachelor's degree earn 65% more than high school graduates over their lifetime. Associate degree-holders earn 27% more than a high school graduate over their lifetime.***

****Based on median earnings in 2011–Education Pays 2013, Published by the College Board***

# BUILD A BETTER FUTURE

**The North Dakota Army National Guard will help you build a better future with tuition assistance, a monthly paycheck, and paid skills training, all while developing leadership skills and expanding career experiences.**

## Choose from a number of career fields and get valuable skills training, while attending college tuition free!

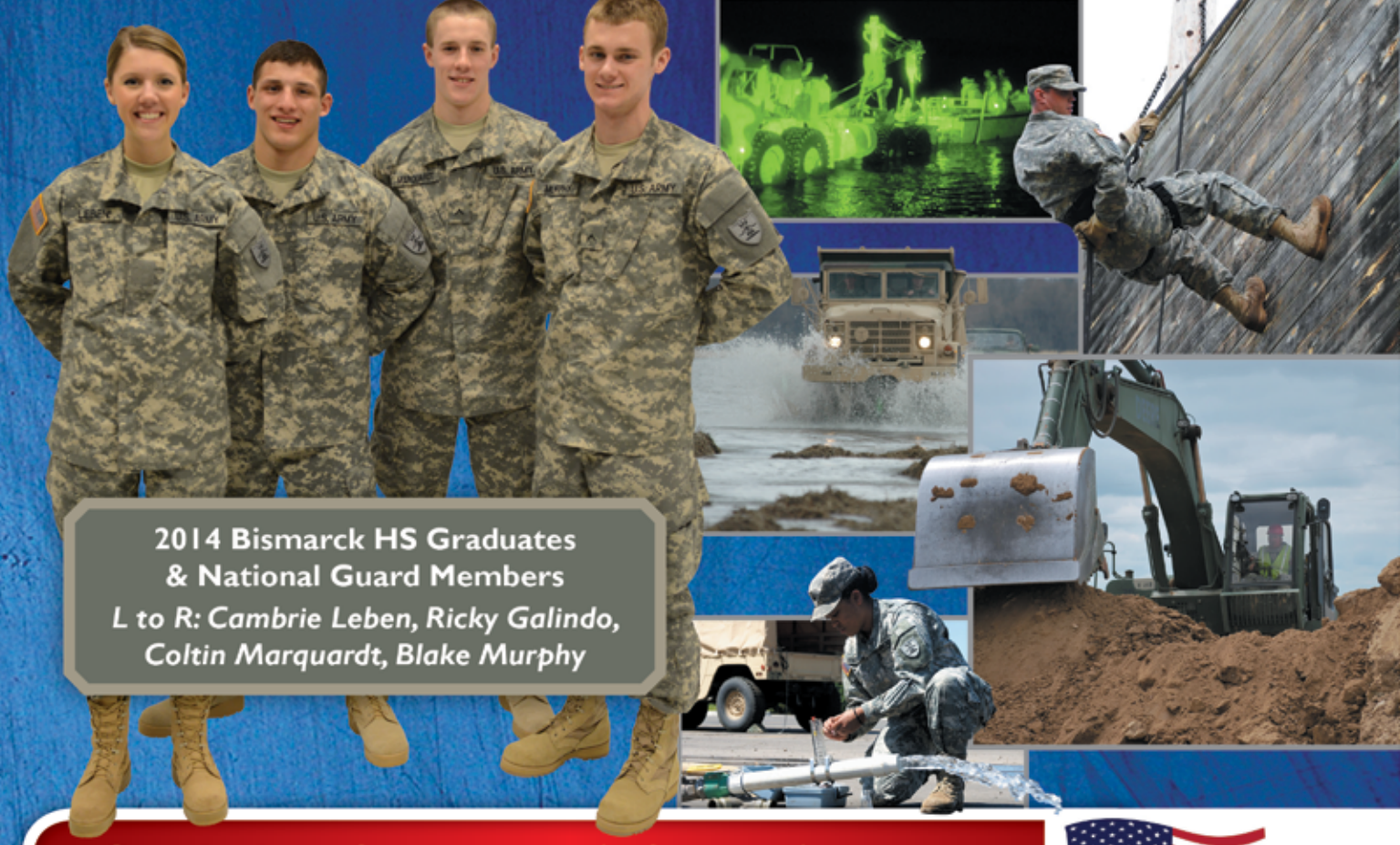
**UP TO $20,000 ENLISTMENT BONUSES AVAILABLE!**

- Engineer
- Environmental Planner
- Human Resources
- Plumber
- Electrician
- Construction
- Surveyor
- Paralegal / Legal Specialist
- Health Care Specialists
- Heavy Equipment Operator
- Information Technology
- Public Information
- Water Treatment Specialist
- Supply Chain Management
- Logistics Specialist
- Chaplain / Pastor
- Police Officer / Security
- Food Service Specialist
- Small Arms Repairer
- Heavy Equipment Mechanic
- Light-Wheeled Vehicle Mechanic
- Counselor / Social Worker
- Videographer / Photographer
- Accountant
- Firefighter
- Truck Driver
- Machinist / Metal Worker
- ***Many More Options Available!***

- Up to 100% Paid College Tuition
- Student Loan Repayment Program
- Excellent Starting Pay
- Low Cost Health, Dental & Life Insurance
- Serve Your Community, State & Country

NORTH DAKOTA NATIONAL GUARD

NDGUARD.com • 1-888-ND-GUARD



**2014 Bismarck HS Graduates & National Guard Members**
*L to R: Cambrie Leben, Ricky Galindo, Coltin Marquardt, Blake Murphy*

## See below for branch information

### ARMY NATIONAL GUARD
*NDGUARD.com*
1-888-ND-GUARD
Bismarck • 701-328-9630
Devils Lake • 701-662-4648
Dickinson • 701-227-7442
Fargo • 701-451-6030
Grand Forks • 701-795-3848
Jamestown • 701-253-3977
Minot • 701-857-7649
Valley City • 701-845-6762
Wahpeton • 701-671-1507
Williston • 701-770-3072

### AIR FORCE
*www.airforce.com*
Bismarck • 701-226-3893
Fargo • 701-277-1818
Grand Forks • 701-775-9361
Minot • 701-839-4635

### AIR NATIONAL GUARD
*www.goang.com*
1-800-972-8825

NORTH DAKOTA AIR NATIONAL GUARD
GoANG.com/ND ▸ 800-TO-GO-ANG

### ARMY & ARMY RESERVE
*www.goarmy.com*
Western ND • 701-223-5455
Eastern ND • 701-277-1299

### ASVAB CAREER EXPLORATION PROGRAM
Fargo • 701-234-0072 or
1-800-323-0513

### MARINES
*www.marines.com*
Bismarck • 701-223-3019
Fargo • 701-277-8403
Grand Forks • 701-772-3627
Minot • 701-839-2091

### NAVY
*www.navy.com*
1-800-872-6289
Fargo • 701-277-1096 (Enlisted)
Fargo • 701-239-5091 (Officer)

### UNITED STATES MILITARY ACADEMY
*www.usma.edu*
West Point, NY
1-845-938-4041

### COAST GUARD
*www.gocoastguard.com*

### UNITED STATES NAVAL ACADEMY
*www.usna.edu*
Annapolis, MD
1-410-293-4361

### UNITED STATES COAST GUARD ACADEMY
*www.cga.edu*
New London, CT
1-800-883-8724

### UNITED STATES MERCHANT MARINE ACADEMY
*www.usmma.edu*
Kings Point, NY
1-516-726-5800

### UNITED STATES AIR FORCE ACADEMY
*www.academyadmissions.com*
Colorado Springs, CO
1-800-443-9266

**Troops to Teachers**
**PROUD TO SERVE AGAIN**

Attention current and former military personnel (active duty, National Guard and Reserves)…the Troops to Teachers (TTT) program offers advising, financial aid, and assistance in identifying teaching vacancies for persons preparing to teach, are currently teaching, or need to add endorsements in critical teaching fields. For further information, please consult the Lewis & Clark Region TTT website at *www.montana.edu/ttt* or call 1-866-478-3224.

# Threefold Video Production

| | Keenan Hauff | Logan Hauff | Caleb Hauff |
|---|---|---|---|
| *Education* | *North Dakota State University*<br>*University Studies, emphasis on Business* | *University of Mary*<br>*Finance* | *Bismarck State College*<br>*Graphic Design and Communication* |

**Threefold is a North Dakota-based creative video production studio comprised of three brothers who graduated from Shiloh Christian School in Bismarck.**

## Q: When did your interest in starting a business begin?

**A:** Growing up, we had to work to earn any money that we had. So at an early age, we started making businesses out of anything possible. We started with lemonade stands and graduated to mowing lawns when we were old enough to push a mower. We were always knocking on neighbors' doors asking if we could do yard work, rake leaves, or pull weeds. Anything we could do to make a few bucks.

Video production was a passionate hobby throughout high school and college. Towards the end of our college careers, we eagerly discussed the possibility of starting our own production company. The more we talked about it, the more excited we became. Threefold was created and branded during our senior year. We organized everything so that Caleb and I (Keenan) could focus on Threefold full time as soon as we graduated. It was an awesome/exciting/scary/stressful/rewarding/magical time.

## Q: Threefold is a unique name. Tell us about the thought process that went into the naming of the business.

**A:** The name Threefold is the product of many hours of brainstorming and attempting to think of the "perfect name." Starting a business with three brothers is very unique and something that we are extremely proud of. Our discussions were guided by the notion that we wanted a name that represents us as brothers.

All three of us look very similar, have many of the same interests, but all have extremely different strengths and talents. Each brother has an area of expertise which makes us strong business partners.

Threefold is defined as: Having three parts or members; being three times as great. We liked that meaning, because together we are much stronger than we could ever be individually. Caleb is the technical mastermind, as he knows cameras front and back, inside and out. Caleb is also our lead shooter, lead colorist, and editor. Keenan serves as our sales and marketing guy, editor, and second shooter. Logan holds it all together. He handles finance, legal aspects and details relating to the business structure, and serves as our lead producer.

### Q: What successes and challenges have you had as entrepreneurs?

**A:** One of the biggest challenges you face as an entrepreneur is finding balance. The demand of starting a business forced us to sacrifice personal time. Finding a balance between work, personal time, and family is vitally important, not only for your own well-being, but also the success of your business. The last thing you want to do is burn out because you never had any personal time.

### Q: What motivates the three of you to work hard and make the business successful?

**A:** Never settle for good enough, we know better.

### Q: Anything else that you want to include?

**A:** We own a 1982 Honda Urban Express. It's the bomb.

**Visit Threefold on their instagram page:**
***www.instagram.com/threefold***

# Employ Yourself... *Be An Entrepreneur*

**Entrepreneurs are people who own and operate their own businesses. They may apply their talents in a wide variety of ways; however, successful entrepreneurs seem to have certain characteristics in common. The following questions may help you learn more about entrepreneurs and about yourself. This is not a scientific evaluation and cannot predict business success, but it can at least be used as a starting point in exploring whether entrepreneurship may be an option for you.**

| Yes | No | | Yes | No | |
|---|---|---|---|---|---|
| ☐ | ☐ | Are you able to get a point across in a conversation? | ☐ | ☐ | Do most people consider you outgoing and self-confident? |
| ☐ | ☐ | Are you willing to put off short-term rewards for greater potential down the road? | ☐ | ☐ | Are you comfortable with a career in which income may vary from week to week or month to month? (for example - no steady paycheck) |
| ☐ | ☐ | Have you taken training in public speaking, debating, sales techniques, or Toastmasters? | ☐ | ☐ | Have you developed a financial plan for retirement? |
| ☐ | ☐ | Are you comfortable approaching friends and colleagues about services and products beneficial to their present and future needs? | ☐ | ☐ | Are you planning for early retirement? |
| ☐ | ☐ | Do you enjoy the challenge of introducing yourself to new contacts who may also have need of your service or product? | ☐ | ☐ | Do you prefer not having goals and objectives set for you by a supervisor? |
| ☐ | ☐ | Have you invested in your own future by developing a modest nest egg to finance a career change? | ☐ | ☐ | Are you plugged in to networking groups and civic organizations in your community? |
| ☐ | ☐ | Are you the first person to introduce yourself in a group of new people? | ☐ | ☐ | Do you consider sales a part of your current position? |
| ☐ | ☐ | Would you describe yourself as having an enthusiastic personality? | ☐ | ☐ | Are you uncomfortable working a traditional 8-5 schedule? |
| ☐ | ☐ | Do you feel comfortable asking for the names of friends and colleagues to contact? | ☐ | ☐ | Do you consider yourself assertive? |
| ☐ | ☐ | Are you comfortable calling strangers for appointments? | ☐ | ☐ | Do you generally step forward and ask for what you want? |

## Your Entrepreneurial Quotient

**Give yourself one point for each "yes" answer.**

***If you scored between 14 and 20***, you probably have the necessary qualities to create your own business opportunity and competently handle the challenge involved.

***If you scored between 10 and 13***, you may have the makings of an entrepreneur but may need more experience before taking the plunge.

***If you scored below 10***, at this point in your life you are probably better suited to traditional employment.

### Some additional factors to consider for self-employment or entrepreneurship:

**Bonuses**

Satisfaction of creating my own job
Able to follow my own interests
Variety, because no day is predictable
Feeling of control over my schedule and working conditions
Opportunity to be creative and test my ideas
More tax deductions
Flexible work hours
No dress code

**Challenges**

Potential for financial loss if business doesn't succeed
Isolation if I work alone
Constant pressure to keep sales up and work coming in
Loss of a workplace structure
The need to do paperwork and record keeping
No benefits such as health, dental, and disability
Long hours
Unpredictable income

### What are some examples of occupations and skills to consider for self-employment?

Accountant
Auctioneer
Bricklayer
Business Plan Writer
Car Buying Agent
Carpenter
Carpet Cleaner
Children's Party Planner
Computer Consultant
Computer Game Designer
Computer Tutor
Day Care Provider
Day Spa Operator
Desktop Publisher
Disc Jockey
Greeting Card Writer
Grounds Maintainer
Home Inspector
Hunting Guide Outfitter
Internet Trainer
Machine Shop Operator
Mail Order Entrepreneur
Medical Illustrator
Personal Fitness Trainer
Personal Improvement Coach
Personal Shopper
Recycling Consultant
Information Researcher
Rock Climbing Gym Owner
Security Engineer
Specialty Optical Equip. Manufacturer
Sports Scout
Taxidermist
Tax Preparer
Travel Writer
Vending Machine Operator
Web Designer

### Where can you get information and assistance on entrepreneurship?

- High school or college career and technical education programs.
- High school or college career centers or career counselors.
- Innovate ND ***http://innovatend.com***
- North Dakota Department of Commerce, Division of Economic Development & Finance ***www.business.nd.gov***

# Vocational Rehabilitation

## ...Make the Transition

Individuals who are typically referred for Vocational Rehabilitation (VR) services include those who have a diagnosis of a learning, behavioral, physical, intellectual, or developmental disability. To be eligible for VR services you must:

- Have a documented disability
- Be able to benefit from services that lead to employment
- Want to work

If you are eligible, VR will help you to determine an appropriate employment goal. You and your counselor will work together to develop an Individualized Plan for Employment (IPE), which identifies what you need to achieve your goal. VR may be able to help you transition from high school to work or from high school to college in preparation for work by providing:

- **Professional Vocational Rehabilitation Counseling & Guidance** – evaluations of strengths and how your disability may affect your ability to work, a comprehensive assessment of your rehabilitation needs, planning and implementing strategies to overcome barriers, and helping you adjust to and live with a disability.
- **Employment** – identification of an employment goal that is consistent with your strengths, resources, abilities, capabilities, priorities, concerns, interests, and informed choice.
- **Accommodations** – if needed, adaptive aids, assistive technology, accessibility, and work site evaluations to assist you in achieving your employment goal.
- **Training** – tailored to meet your individual rehabilitation needs and attain your employment goal. This may include on-the-job training, internships, job mentoring, job coaching and/or academic training. This may also include assisting you to advocate for the services you will need to succeed in college. VR may also assist you with school costs if there is a financial need.
- **Job Placement** – develop resume writing skills and interview strategies, job referral, placement and follow-up services.

**For more information about Vocational Rehabilitation, please visit:**

***www.nd.gov/dhs/dvr***

DIVISION of VOCATIONAL REHABILITATION
State of North Dakota

## Vocational Rehabilitation/ Human Services Regional Offices

**Bismarck**
701-328-8800
888-862-7342 (toll free)
ND Relay 1-800-366-6888
1237 W Divide Ave Suite #2
Bismarck, ND 58501

**Grand Forks**
701-795-3100
888-256-6742 (toll free)
ND Relay 1-800-366-6888
151 S 4th St Suite 401
Grand Forks, ND 58201-4735

**Devils Lake**
701-665-2235
888-607-8610 (toll free)
ND Relay 1-800-366-6888
200 Highway 2 SW
PO Box 650
Devils Lake, ND 58301-0650

**Jamestown**
701-253-6388
800-639-6292 (toll free)
ND Relay 1-800-366-6888
520 Third St NW
PO Box 2055
Jamestown, ND 58402-2055

**Dickinson**
701-227-7600
888-227-7525 (toll free)
ND Relay 1-800-366-6888
1674 15th St W Unit E
Dickinson, ND 58601

**Minot**
701-857-8642
888-470-6968 (toll free)
ND Relay 1-800-366-6888
1015 S Broadway Suite 18
Minot, ND 58701-4667

**Fargo**
701-298-4459
888-342-4900 (toll free)
ND Relay 1-800-366-6888
2624 Ninth Ave SW
Fargo, ND 58103-2350

**Williston**
701-774-4662
800-231-7724 (toll free)
ND Relay 1-800-366-6888
316 Second Ave W
PO Box 1266
Williston, ND 58802-1266

# Finding Your First Job...

- **Early Experiences:** Working for friends and neighbors is a great way to get experience for future job opportunities. Babysitting, mowing lawns, shoveling snow and taking care of pets can be part of your work history and resume.
- **Be Flexible:** If you limit the hours or days of availability, the employer may be reluctant to hire you. If your employer knows that you have flexibility as to when you work, it will improve your chances of being hired.
- **Consider a Resume:** Employers may not require a resume. Having one to give to prospective employers can help you stand out from the other applicants.
- **Volunteer:** Even though you won't get a paycheck, volunteering will increase your experience and list of potential references for future paid positions.
- **Keep Trying:** Job searching isn't easy. Keep applying and you will find a job.

## Helpful Sources of Information:

Career Builder: ***www.careerbuilder.com***

Job Service North Dakota: ***www.jobsnd.com***

Career OneStop: ***www.careeronestop.org***

Monster: ***www.monster.com***

RUReadyND.com: ***www.ureadynd.com***

# Living on your own?

### *When you are 22 years of age, what will your financial future look like?*

The budget numbers are based on an average annual salary of $28,000, a $10,000 student loan, and typical expenses for a 22-year old. When making your plans for after high school, consider a budget scenario similar to the example given. **$10,000 student loan at 6.8% interest, repaid over 120 months.*

**Income before taxes ..... $28,000**
**Approximate take home pay ..... $21,000**
**Monthly take home pay ..... $1,750**

| Monthly Expenditures | |
|---|---|
| Food at home and take out | $300 |
| Housing | $655 |
| Utilities | $115 |
| Household expenses | $50 |
| Clothing & footwear | $95 |
| Car payment | $150 |
| Gasoline, car insurance and maintenance | $110 |
| Health & personal care | $65 |
| Entertainment including cell phone | $95 |
| Student loan repayment | $115 |
| **Total** | **$1,750** |

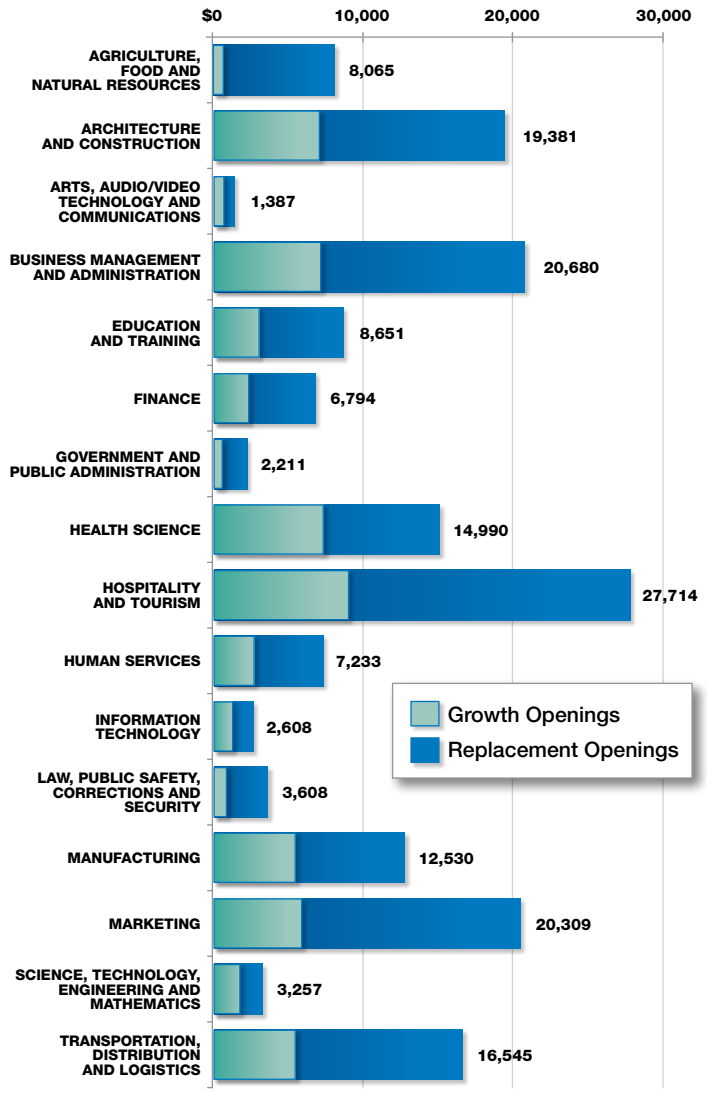
*For more information on financial literacy, visit:*
**Jump$tart Coalition for Personal Financial Literacy®**
***www.jumpstart.org/reality-check.html***

Sources: U.S. Bureau of Labor Statistics, 2013 Average Annual Expenditures based on Age • ***www.mappingyourfuture.org/paying/standardcalculator.cfm***

# JOB SERVICE North Dakota

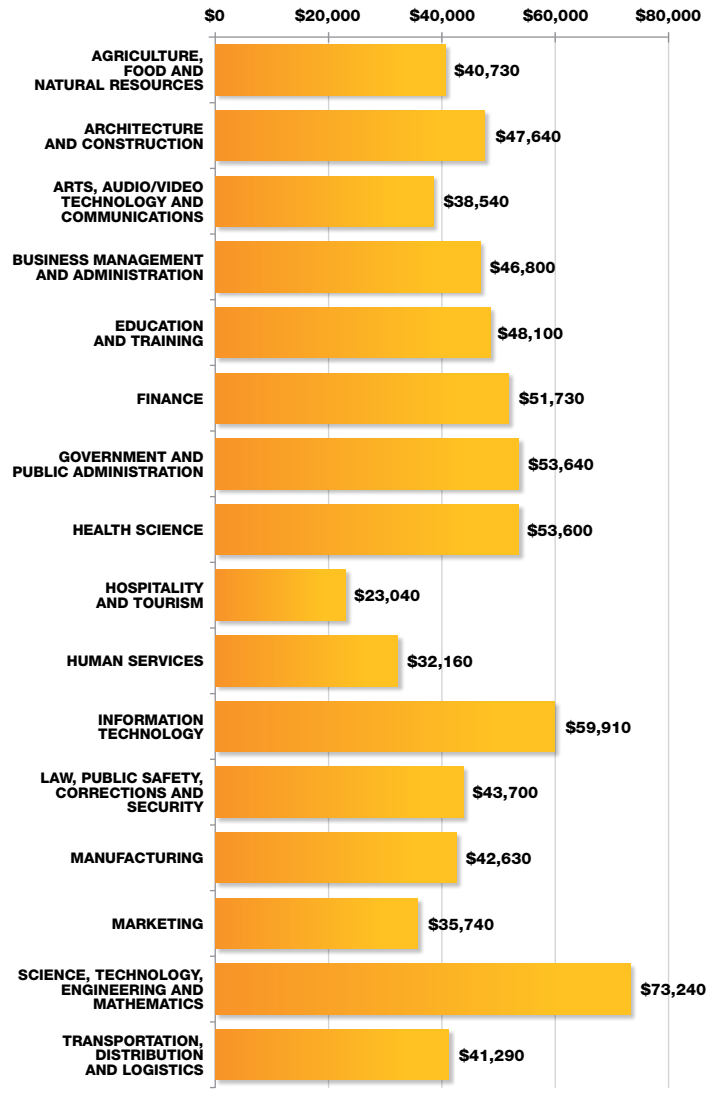
JOB SERVICE North Dakota
jobsnd.com

## EMPLOYMENT PROJECTIONS 2012-2022 TOTAL OPENINGS




## AVERAGE 2013 WAGES

***STATEWIDE AVERAGE WAGES: $47,779***




## JOB SERVICE NORTH DAKOTA

**Beulah**
119 E Main
701-873-5607

**Bismarck-Mandan**
1601 E Century Ave
701-328-5000

**Devils Lake**
301 College Dr S
701-662-9300

**Dickinson**
66 Osborn Dr
701-227-3100

**Fargo**
1350 32nd St S
701-239-7300

**Grafton**
927 12th St W
701-352-4450

**Grand Forks**
1501 28th Ave S
701-795-3700

**Harvey**
119 9th St W
701-324-4552

**Jamestown**
1307 12th Ave NE Ste 3
701-253-6200

**Minot**
3416 N Broadway
701-857-7500

**New Town**
204 Main St
701-627-4390
701-857-7500

**Oakes**
924 S 7th St
701-742-2546

**Rolla**
103 E Main Ave
701-477-5631

**Valley City**
325 2nd Street NW
701-845-8860

**Wahpeton**
524 2nd Ave N
701-671-1550

**Williston**
422 1st Ave W
701-774-7900

***www.jobsnd.com*** ***Statewide TTY 800-366-6888**

*Career planning and exploration is a vital ingredient in achieving success in the workplace. Today, there are many comprehensive publications and sources of information to aid in the process. A few of our career-oriented products specific to North Dakota's labor market are available at* ***www.ndworkforceintelligence.com.*** *They cover nearly everything you ever wanted to know about career opportunities in North Dakota and may include employment projections, wages, core tasks, work activities, skills, knowledge, and typical education/training requirements.*

## Quentin N. Burdick Job Corps Center

# FREE! Job Training and Career Placement

Job Corps is the nation's oldest and most successful job training program for young adults ages 16 through 24. After graduation, Job Corps staff will help student employees find a job in their chosen field.

### *Burdick Job Corps provides the following:*

- Career Success Standards Training
- A modest living allowance with room and board
- Basic medical and dental care

***It is FREE to those who qualify***

For more information, including eligibility requirements, contact the Outreach and Admissions Office at Burdick Job Corps Center in Minot, ND, at 701-857-9671 or 701-857-9611.

***http://quentinnburdick.jobcorps.gov***

### *ACADEMIC TRAINING*

Students enroll year-round at Job Corps. They can obtain their GED or high school diploma.

### *CAREER & TECHNICAL TRAINING*

- Office Administration
- Culinary Arts/Food Service
- NA/HHA (Nursing Assistant/ Home Health Aide)
- Carpentry
- Facilities Maintenance
- Maintenance Light Repair
- Welding
- Advanced Training at Dakota College at Bottineau or Minot State University

### *SINGLE PARENT PROGRAM*

A Solo Parent Program is available for single parents and their dependent children. This allows students to participate in Job Corps without having to be separated from their children.

## ApprenticeshipUSA

Apprenticeship offers opportunities to earn a salary while learning the skills necessary to succeed in high-demand careers. Apprentices complete a combination of industry-specific classroom education and hands-on career training leading to nationally recognized certifications.

**Must be 16 or older to apply.*

**For More Information: *www.dol.gov/apprenticeship* • 701-250-7500**

# Are you ready to make a difference?
## *Be an AmeriCorps member!*

***AmeriCorps is a way to put your idealism into action.*** As an AmeriCorps member, you can help make the world a better place: help children learn, protect the environment, or bring needed services to a low-income community.

***When you join AmeriCorps, your energy, ideals, and talents will be used to help others.*** You will learn teamwork, leadership, responsibility, and other essential skills through the AmeriCorps real-life education and work experience.

***After completing your term of service, you will receive a Segal AmeriCorps Education Award to help pay for college, graduate school, vocational training, or to repay student loans.***

For more information, visit ***www.americorpsnd.com***

# North Dakota Postsecondary Programs and 2015-16 Estimated On-Campus Budgets

## for Resident Dependent Students

| | School | City | Website | Phone Number | Tuition & Fees | Books & Supplies | Room & Board | Total |
|---|---|---|---|---|---|---|---|---|
| NDUS 2-Yr. | Bismarck State College | Bismarck | www.bismarckstate.edu | 800-445-5073 or 701-224-5000 | $4,320 | $1,000 | $6,578 | $11,898 |
| | Dakota College at Bottineau | Bottineau | www.dakotacollege.edu | 800-542-6866 or 701-228-5488 | $4,181 | $1,225 | $6,045 | $11,451 |
| | Lake Region State College | Devils Lake | www.lrsc.edu | 800-443-1313 or 701-662-1600 | $4,138 | $1,000 | $5,842 | $10,980 |
| | North Dakota State College of Science | Wahpeton | www.ndscs.edu | 800-342-4325 or 701-671-2207 | $4,571[6] | $1,000 | $6,030 | $11,601 |
| | Williston State College | Williston | www.willistonstate.edu | 888-863-9455 or 701-774-4200 | $3,319 | $1,100 | $9,572 | $13,991 |
| NDUS 4-Yr. | Dickinson State University | Dickinson | www.dickinsonstate.edu | 800-279-4295 or 701-483-2175 | $6,172 | $1,200 | $6,480 | $13,852 |
| | Mayville State University | Mayville | www.mayvillestate.edu | 800-437-4104 or 701-788-4687 | $6,380[4] | $1,000 | $6,976 | $14,356 |
| | Minot State University | Minot | www.minotstateu.edu | 800-777-0750 or 701-858-3000 | $6,390 | $1,100 | $5,936 | $13,426 |
| | North Dakota State University | Fargo | www.ndsu.edu | 800-488-6378 or 702-231-8011 | $7,978 | $1,100 | $7,710 | $16,788 |
| | University of North Dakota | Grand Forks | www.und.edu | 800-225-5863 or 701-777-3000 | $7,964 | $1,000 | $7,520[8] | $16,484 |
| | Valley City State University | Valley City | www.vcsu.edu | 800-532-8641 or 701-845-7412 | $6,799[1,4] | $1,200 | $6,175 | $14,174 |
| Private | Burdick Job Corps Center | Minot | http://quentinnburdick.jobcorps.gov | 701-857-9600 | See pg. 62 for more info. | | | |
| | Lynnes Welding Training | Bismarck/ Fargo | www.learntoweld.com | 701-751-4256 or 701-373-0658 | $12,300 | $475 | $2,735[3] | $15,510 |
| | Rasmussen College | Bismarck/ Fargo | www.rasmussen.edu | 800-817-0009 or 701-277-3889 | $14,352[7] | $0 | $5,256[3] | $19,608 |
| | Trinity Bible College | Ellendale | www.trinitybiblecollege.edu | 800-523-1603 or 701-349-3621 | $15,506 | $1,000 | $5,746[5] | $22,252 |
| | University of Jamestown | Jamestown | www.uj.edu | 800-336-2554 or 701-253-4318 | $19,870 | $1,000 | $6,860 | $27,730 |
| | University of Mary | Bismarck | www.umary.edu | 800-288-6279 or 701-355-8030 | $16,760 | $1,222 | $6,246 | $24,228 |
| Tribal | Cankdeska Cikana Community College | Fort Totten | www.littlehoop.edu | 888-783-1463 or 701-766-4415 | $3,300 | $700 | $4,000[3] | $8,000 |
| | Fort Berthold Community College (Nueta Hidatsa Sahnish College) | New Town | www.fortbertholdcc.edu | 701-627-4738 | $4,210 | $1,500 | $3,800[3] | $9,510 |
| | Sitting Bull College | Fort Yates | www.sittingbull.edu | 701-854-8000 | $3,910 | $1,200 | $5,796 | $10,906 |
| | Turtle Mountain Community College | Belcourt | www.tm.edu | 701-477-7862 | $2,050 | $400 | $3,664[3] | $6,114 |
| | United Tribes Technical College | Bismarck | http://uttc.edu | 888-643-8882 or 701-255-3285 | $3,800 | $1,400 | $4,480 | $9,680 |
| Cosmetology/Barber | Headquarters Academy of Hair Design | Minot | http://hqacademyofhair.com | 800-891-5135 or 701-852-8329 | $13,815 | $416 | $8,880[3] | $23,111 |
| | Josef's School of Hair Design | Fargo | www.josefsschoolofhairdesign.com | 701-306-0712 | $16,600 | $1,770 | $7,700[3] | $26,070 |
| | Josef's School of Hair Design | Grand Forks | www.josefsschoolofhairdesign.com | 701-306-0712 | $17,100 | $1,770 | $7,700[3] | $26,570 |
| | JZ Trend Academy–Paul Mitchell School | Bismarck | www.jztrendacademy.edu | 800-767-5079 or 701-223-8154 | $14,395 | $2,000 | $11,750[3] | $28,145 |
| | Moler Barber College of Hairstyling | Fargo | http://molerbarberfargo.com | 701-232-6773 | $6,437 | $855 | $5,335[3] | $12,627 |
| | The Hair Academy | Bismarck | www.thehairacademynd.com | 866-793-9594 or 701-255-3547 | $10,920 | $1,499 | $11,484[3] | $23,903 |
| | The Salon Professional Academy | Fargo | www.tspafargo.com | 877-478-1772 or 701-478-1772 | $16,290 | $2,265 | $11,550[3] | $30,105 |
| Flight | Executive Air Taxi Corporation | Bismarck | www.executive-air.com | 701-258-5024 | Costs may vary. Contact individual entities for more information. | | | |
| | Fargo Jet Center | Fargo | www.fargojet.com | 800-770-0538 | | | | |
| | GFK Flight Support | Grand Forks | www.flygfk.com | 701-772-5504 | | | | |
| | Minot Aero Center/Pietsch Aircraft | Minot | http://minotaerocenter.com | 701-852-4092 | | | | |

***Note:*** *Totals do not include Personal, Recreational or Miscellaneous costs which average approximately $3,400. Costs may be different for specialized programs. Contact the college/program for more information.*

**Footnotes:**
1 Based on 15 credits per term
3 Estimate for off campus housing, school does not have dorm facilities
4 Includes notebook computer
5 Based on double-room occupancy and 19 meals, seven-day plan
6 Based on 16 credits per term
7 Based on 12 credits per term
8 Contact campus housing for actual costs

# NORTH DAKOTA CTSO LEADERS

## Career and Technical Student Organizations (CTSOs)

CTSOs put your skills to the test, and help you learn, grow and compete.

Join a student organization to:

- Learn more about careers
- Develop leadership skills that will prepare you for college and career
- Test your skills at state and national competitions
- Participate in community service opportunities

NORTH DAKOTA DECA

**DECA** provides many opportunities to grow. I have experienced real-life business situations, developed effective leadership and speaking skills, and connected with members throughout the United States.
*– Casey Osborn, Mandan High School*

FBLA

**FBLA** members prepare for the transition from school to work. Development of practical work skills (resume building, mock interview practice, etc.), allows them to enter the workforce with full confidence.
*– Keaton Erickson, Carrington High School*

FCCLA

**FCCLA** provides me with many opportunities for personal growth and leadership development.
*– Abbey Wiedrich, Mt. Pleasant High School (Rolla)*

FFA

**FFA** teaches vital skills that will lead to a successful future.
*– Claire Endres, Carrington High School*

SkillsUSA

**SkillsUSA** benefits students by allowing them to compete in events with others who share the same interest while preparing them for the future.
*– Madison Goetzfridt, Mandan High School*

TSA TECHNOLOGY STUDENT ASSOCIATION

**TSA** is a great way for students to learn about and experience a wide variety of technology related career fields in a fun and exciting environment.
*– Allison Inman, West Fargo High School*

North Dakota cte Career and Technical Education

**North Dakota Department of Career & Technical Education**
600 E Blvd Ave - Dept 270 • Bismarck, ND 58505 • Ph: 701-328-3180 • Fax: 701-328-1255
***E-mail: cte@nd.gov • www.nd.gov/cte***