CAREER & TECHNICAL EDUCATION

Workforce Trends & Careers of Tomorrow

RealTime Talent
Erin Olson, Director of Strategic Research
October 2021

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Who’s in the Virtual “Room”

In the chat field, please share your name, your role, and the organization that you represent.
CAREER & TECHNICAL EDUCATION BEYOND 2020

Workforce Trends & Careers of Tomorrow

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Erin Olson, Director of Strategic Research
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Overview

- Community Profile
- Workforce Forecast
- Mid-Term Occupational Impacts
- Career Field Insights

Access the full report here: http://www.realtimetalent.org
Community Profile

Population Race, All Ages

<table>
<thead>
<tr>
<th>Location</th>
<th>White</th>
<th>Black or African American</th>
<th>American Indian or Alaska Native</th>
<th>Asian</th>
<th>Native Hawaiian or Other Pacific Islander</th>
<th>Some Other Race</th>
<th>Two or More Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin</td>
<td>86.8%</td>
<td>3.9%</td>
<td>3.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winona</td>
<td>93.6%</td>
<td>1.3%</td>
<td>2.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rochester</td>
<td>87.4%</td>
<td>4.5%</td>
<td>4.3%</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Southeast</td>
<td>88.8%</td>
<td>3.8%</td>
<td>3.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td>83.3%</td>
<td>6.2%</td>
<td>4.7%</td>
<td></td>
<td></td>
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</tbody>
</table>

Community Profile

Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2020Q4 with preliminary estimates updated to 2021Q1.

Source: JobsEQ. Data as of 2021Q1. The shaded areas of the graph represent national recessions.
Community Profile

Average Annual Wages for Southeast Minnesota

Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2020Q4 with preliminary estimates updated to 2021Q1.

Southeast Minnesota
Community Profile

Southeast Minnesota

- Gross Regional Product (GRP) contracted -1.8%
- Healthcare contributes most to GRP
Workforce of Today & Tomorrow

Forecast

5-Year Forecast Comparison in Southeast Minnesota
When you think about the current economic situation in your community, which of the following career fields do you feel has the most challenging or pressing workforce needs to be addressed right now? (select up to two)

1. Agriculture, Food, and Natural Resources
2. Arts, Communications, and Information Systems
3. Business, Management, and Administration
4. Engineering, Manufacturing, and Technology
5. Health Science Technology
6. Human Services
When you think about your local school, district, or consortium’s programming, how well do you feel current program offerings address your community’s most challenging or pressing workforce needs right now?

1. To a Great Extent
2. Somewhat
3. Very Little
4. Not at all
5. I do not know
Workforce of Today & Tomorrow

Forecast

Industry Clusters for Southeast Minnesota as of 2021Q1

Average Wages ($1,000s)

Average Annual Employment Forecast Rate(%) 2021Q1-2031Q1
Mid-Term Occupational Impacts

**High Contact-Intensity Occupations**

Diverging Mid-Term Impacts (greatest losses)
- Bartenders (-34.4%)
- Waiters and Waitresses (-31.8%)
- Transit and Intercity Bus Drivers (-36%)

Growth Among High Contact-Intensity Occupations
- Pharmacy Aides (+8.7%)
- Emergency Medical Technicians (+8.0%)
- Pharmacy Technicians (+7.7%)
- Veterinarians (+5.7%)

Average unemployment rate of **5.4%** across all high contact-intensity roles.
COVId-19 has accelerated talent surplus anticipated in lower-wage, lower-education positions, particularly:

1) high contact-intensity occupations and
2) positions that cannot be done remotely.
Emerging Career Paths

Top Emerging Occupations in Southeast Minnesota, March 1 – August 31, 2021
Compared to the same dates in 2020 (high-growth occupations by order of volume of postings)
1. Licensed Practical and Licensed Vocational Nurses (+249%)
2. Combined Food Preparation and Serving Workers (+78%)
3. Light Truck or Delivery Services Drivers (+291%)
4. Demonstrators and Product Promoters (+684%)
5. Surgical Technologists (+438%)

Top Sustaining Occupations in Southeast Minnesota September 2020 – 2021
1. Registered Nurses (+55%)
2. Heavy and Tractor-Trailer Truck Drivers (+54%)
3. Laborers and Freight, Stock, and Material Movers (+93%)
4. Supervisors of Retail Service Workers (+30%)
5. Customer Service Representatives (+31%)
Emerging Career Paths

Change in Volume of Remote Work Opportunities

1. Registered Nurses (+45%)
2. Insurance Sales Agents (+100%)
3. Customer Service Representatives (+148%)
4. Computer Occupations, All Other (+186%)
5. Software Developers (+316%)

Baseline Worst-Case Scenario 10-Year Forecasts by Career Cluster, Southeast Minnesota 2021Q1

10 Year Forecast Growth Rate
Total Employment, Latest Available Data

- Agriculture, Food & Natural Resources: -4.0%
- Architecture & Construction: 1.6%
- Arts, A/V Technology & Communications: -7.1%
- Business, Management & Administration: -3.6%
- Education & Training: 1.6%
- Finance: 0.6%
- Government & Public Administration: 1.9%
- Health Science: 10.0%
- Hospitality & Tourism: 3.9%
- Human Services: 13.9%
- Information Technology: 3.3%
- Law, Public Safety, Corrections & Security: 1.7%
- Manufacturing: -5.1%
- Marketing, Sales & Service: -4.9%
- Science, Technology, Engineering & Mathematics: 1.4%
- Transportation, Distribution & Logistics: -1.1%
Career Field Analysis

**Origin Occupations**

- Low wage (<$42,000/year)
- Low skill (no credential)
- Low demand (over 5% unemployment, low growth, low replacement demand, and/or low job postings)

**Gateway Occupations**

- Mid-wage ($42,000 – regional average)
- Low-middle skills (HS diploma, some OJT)
- Sufficient demand (3-5% unemployment and/or high volumes of current opportunities)

**Target Occupations**

- High wage (above regional average)
- High-skill (require some credential)
- High-demand (2/4 indicators: under 3% unempl, higher than average 5-year growth, total 5-year demand >50% of current empl, high job posting volume)

  *Often also high occupation gap and award gap*
Career Field Analysis

Occupation Characteristics for Consideration

• High-Wage: Paying above the area mean wage
• High-Skill: Requiring some form of credential
• High-Demand: 2/4 of the following requirements met:
  • Low unemployment
  • High volume of job postings in the past 3 months
  • Forecasted growth outpaces average regional forecasted growth
  • Forecasted total demand equal to or greater than 50% of total current employment
• Occupation Gaps
• Award Gaps
Baseline Worst-Case Scenario 3-Year Forecast for Health Science Technology Careers, Southeast Minnesota 2021Q1

3 Yrs Ago 34,121
Current 35,039

Chmura Economics JobsEQ, 2021Q1 dataset.
Health Science Technology

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, Southeast Minnesota 2021Q1

-53
-45
-25
-19
-19
-18
-13
-6
-6
-6
-6

Certification Gaps

- Licensed Practical Nurse (LPN)
- Family Nurse Practitioner (FNP-BC)
- Registered Nurse (RN)
- Certified Nursing Assistant (CNA)
- Acute Care Nurse Practitioner (ACNP-BC)
- Adult Nurse Practitioner (ANP-BC)
- National Phlebotomy Association Certified Phlebotomist
- The American Registry of Radiologic Technologists (ARRT) Certification
- Medical Technologist (Medical Technologists)
- Certification in Pathology: Neuropathology (NP)

Chmura Economics JobsEQ, 2021Q1 dataset.
## Health Science Technology
Southeast MN, 2021Q1

### Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Assistants (HS, OG, AG)</td>
<td>Personal Care Aides</td>
</tr>
<tr>
<td>Home Health Aides (HD)</td>
<td>Childcare Workers</td>
</tr>
<tr>
<td>Pharmacy Technicians (OG)</td>
<td>Secretaries</td>
</tr>
<tr>
<td>Phlebotomists (HS, OG)</td>
<td>Customer Service Reps</td>
</tr>
<tr>
<td>Opticians, Dispensing (OG, AG)</td>
<td>Cooks</td>
</tr>
</tbody>
</table>

### Gateway Occupations

- Medical Assistants (HS, HD, OG, AG)
- Medical Secretaries and Administrative Assistants (OG, AG)
- Licensed Practical and Licensed Vocational Nurses (HS, OG)
- Medical Dosimetrists (HS, OG, AG)
- Dental Assistants (HS, HD)

### Target Occupations

(all HW, HD, HS)
- Registered Nurses (OG, AG)
- Nurse Practitioners (OG, AG)
- Medical and Health Services Managers (OG)
- Physical Assistants (OG, AG)
- Diagnostic Medical Sonographers (OG)
## Top Target Occupations in Health Science Technology, Southeast Minnesota 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Emp</th>
<th>Mean Ann Wages</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-1141</td>
<td>Registered Nurses</td>
<td>7,343</td>
<td>$72,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>29-1171</td>
<td>Nurse Practitioners</td>
<td>1,095</td>
<td>$114,200</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>11-9111</td>
<td>Medical and Health Services Managers</td>
<td>1,001</td>
<td>$97,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>29-1071</td>
<td>Physician Assistants</td>
<td>732</td>
<td>$123,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>29-2032</td>
<td>Diagnostic Medical Sonographers</td>
<td>251</td>
<td>$86,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>29-1126</td>
<td>Respiratory Therapists</td>
<td>238</td>
<td>$69,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>29-1127</td>
<td>Speech-Language Pathologists</td>
<td>179</td>
<td>$64,600</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>29-1131</td>
<td>Veterinarians</td>
<td>110</td>
<td>$94,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
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<tr>
<td>29-1223</td>
<td>Psychiatrists</td>
<td>99</td>
<td>$253,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>29-1011</td>
<td>Chiropractors</td>
<td>82</td>
<td>$80,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
</tbody>
</table>
Baseline Worst-Case Scenario 3-Year Forecast for Human Services Careers, Southeast Minnesota 2021Q1

Chmura Economics JobsEQ, 2021Q1 dataset.
Human Services

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, Southeast Minnesota 2021Q1

Substance Abuse, Behavioral Disorder, and Mental Health Counselors ($51,600)
Secondary School Teachers, Except Special and Career/Technical Education ($62,300)
Emergency Medical Technicians ($42,100)
Police and Sheriff’s Patrol Officers ($65,800)
Child, Family, and School Social Workers ($59,200)
Social and Community Service Managers ($78,100)
First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services ($49,600)
Court, Municipal, and License Clerks ($48,300)
Firefighters ($33,900)
Health Specialties Teachers, Postsecondary ($118,100)
Laundry and Dry-Cleaning Workers ($28,400)
Legal Secretaries and Administrative Assistants ($51,800)
Kindergarten Teachers, Except Special Education ($58,800)
Exercise Trainers and Group Fitness Instructors ($43,900)
Hairdressers, Hairstylists, and Cosmetologists ($30,200)
Security Guards ($34,600)
Residential Advisors ($40,200)
School Bus Monitors and Protective Service Workers, All Other ($33,200)
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers ($24,700)
Childcare Workers ($25,700)
## Human Services

**Southeast MN, 2021Q1**

### Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Care Aides (HD, AG)</td>
<td>Home Health Aides</td>
</tr>
<tr>
<td>Teaching Assistants (HS, HD)</td>
<td>Medical Assistants</td>
</tr>
<tr>
<td>Childcare Workers (HD, AG)</td>
<td>Waiters and Waitresses</td>
</tr>
<tr>
<td>Social and Human Service Assistants (HD)</td>
<td>Cashiers</td>
</tr>
<tr>
<td>Preschool Teachers (HS, HD, OG)</td>
<td>Cooks</td>
</tr>
</tbody>
</table>

### Gateway Occupations

- Emergency Medical Technicians (HS, OG, AG)
- Substance, Behavioral, and Mental Health Counselors (HS, HD, OG)
- Court, Municipal, and License Clerks (OG)
- Healthcare Social Workers (HS, HD, OG, AG)
- Correctional Officers and Jailers (AG)

### Target Occupations

(all HW, HD, HS, OG)

- Secondary School Teachers
- Child, Family, and School Social Workers
- Social and Community Service Managers
- K-12 Education Administrators
- Instructional Coordinators
<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Empl</th>
<th>Mean Ann Wages</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-2031</td>
<td>Secondary School Teachers, Except Special and Career/Technical Education</td>
<td>1,062</td>
<td>$62,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>21-1021</td>
<td>Child, Family, and School Social Workers</td>
<td>384</td>
<td>$59,200</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>11-9151</td>
<td>Social and Community Service Managers</td>
<td>238</td>
<td>$78,100</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>11-9032</td>
<td>Education Administrators, Kindergarten through Secondary</td>
<td>217</td>
<td>$105,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>25-9031</td>
<td>Instructional Coordinators</td>
<td>172</td>
<td>$71,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>25-2012</td>
<td>Kindergarten Teachers, Except Special Education</td>
<td>161</td>
<td>$58,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
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<tr>
<td>25-1071</td>
<td>Health Specialties Teachers, Postsecondary</td>
<td>157</td>
<td>$118,100</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
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<tr>
<td>21-2021</td>
<td>Directors, Religious Activities and Education</td>
<td>143</td>
<td>$63,700</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>AG</td>
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<tr>
<td>21-1091</td>
<td>Health Education Specialists</td>
<td>129</td>
<td>$63,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
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<tr>
<td>25-4022</td>
<td>Librarians and Media Collections Specialists</td>
<td>121</td>
<td>$60,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
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</tbody>
</table>
Arts, Communications, & Information Systems

Baseline Worst-Case Scenario 3-Year Forecast for Arts, Communications, and Information Systems Careers, Southeast Minnesota 2021Q1

- Historical
- Forecast

Chmura Economics JobsEQ, 2021Q1 dataset.
Arts, Communications, & Information Systems
Southeast MN, 2021Q1

Target Occupations (all HW, HD, HS)
- Computer Network Architects
- Writers & Authors
- Producers & Directors (OG)
- Information Security Analysts (OG)
- Commercial & Industrial Designers (AG)

Gateway Occupations
- Computer User Support Specialists (HS, AG)
- Telecommunications Line Installers & Repairers (HS, AG)
- Graphic Designers (HS, AG)
- Printing Press Operators (AG)
- Musicians & Singers (HD, OG, AG)

Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floral Designers</td>
<td>Library Technicians</td>
</tr>
<tr>
<td>Broadcast Announcers &amp; Radio Disc Jockeys (HS, HD)</td>
<td>Recreation Attendants</td>
</tr>
<tr>
<td>Print Binding &amp; Finishing Workers</td>
<td>Hosts and Hostesses</td>
</tr>
<tr>
<td>Broadcast Technicians (HS, HD, AG)</td>
<td>Customer Service Reps</td>
</tr>
<tr>
<td>Actors (HS, HD)</td>
<td>Photo Process Machine Ops</td>
</tr>
</tbody>
</table>
## Top Target Occupations in Arts, Communications, and Information Systems, Southeast Minnesota 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Empl</th>
<th>Mean Ann Wages(^2)</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
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</thead>
<tbody>
<tr>
<td>15-1241</td>
<td>Computer Network Architects</td>
<td>111</td>
<td>$113,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
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<tr>
<td>27-3043</td>
<td>Writers and Authors</td>
<td>91</td>
<td>$58,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-2012</td>
<td>Producers and Directors</td>
<td>87</td>
<td>$58,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
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<tr>
<td>15-1212</td>
<td>Information Security Analysts</td>
<td>77</td>
<td>$104,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>27-1021</td>
<td>Commercial and Industrial Designers</td>
<td>41</td>
<td>$71,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>27-1014</td>
<td>Special Effects Artists and Animators</td>
<td>32</td>
<td>$60,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
Baseline Worst-Case Scenario 3-Year Forecast for Business, Management, and Administration Careers, Southeast Minnesota 2021Q1

Historical vs. Forecast Employment

- 2017Q2
- 2018Q2
- 2019Q2
- 2020Q2
- 2021Q2
- 2022Q2

3 Yrs Ago: 66,722
Current: 61,465

Chmura Economics JobsEQ, 2021Q1 dataset.
Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, Southeast Minnesota 2021Q1

- General and Operations Managers ($102,600) -11
- Financial Managers ($112,500) -7
- Project Management Specialists and Business Operations Specialists, All Other ($65,400) -6
- Accountants and Auditors ($71,200) -5
- Market Research Analysts and Marketing Specialists ($55,700) -4
- Human Resources Specialists ($61,900) 3
- Management Analysts ($82,500) 3
- Billing and Posting Clerks ($42,600) 3
- Cooks, Restaurant ($30,400) 2
- Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other ($102,700) 2
- Bartenders ($26,800) 7
- Stockers and Order Fillers ($32,100) 8
- Food Preparation Workers ($26,100) 9
- Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($38,400) 10
- Office Clerks, General ($38,000) 13
- Customer Service Representatives ($36,500) 17
- Waiters and Waitresses ($30,900) 29
- Retail Salespersons ($31,400) 32
- Fast Food and Counter Workers ($26,200) 52
- Cashiers ($26,500) 87

Southeast Minnesota

Certification Gaps
- Certified Public Accountant (CPA)
- Certified Internal Auditor (CIA)
- Certified Management Accountant (CMA)
- Senior Professional in Human Resources (SPHR)
- Professional in Human Resources (PHR)
- Commercial Driver’s License (CDL)
- Basic Life Support (BLS)
- Society for Human Resource Management Certified Professional (SHRM-CP)
- Forklift Certified
- Chartered Financial Analyst (CFA)

Chmura Economics JobsEQ, 2021Q1 dataset.
<table>
<thead>
<tr>
<th>Origin Occupations</th>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashiers</td>
<td></td>
<td>Personal Care Aides</td>
</tr>
<tr>
<td>Retail Salespersons (HD)</td>
<td></td>
<td>Eligibility Interviewers</td>
</tr>
<tr>
<td>Fast Food and Counter Workers (HD)</td>
<td></td>
<td>Childcare Workers</td>
</tr>
<tr>
<td>Office Clerks, General (AG)</td>
<td></td>
<td>Library Technicians</td>
</tr>
<tr>
<td>Customer Service Representatives (AG)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Gateway Occupations**

- Bookkeeping, Accounting, and Auditing Clerks (HS, AG)
- First-Line Supervisors of Retail Sales Workers
- Billing and Posting Clerks (OG)
- Sales Representatives and Services (HD, AG)
- Market Research Analysts (HS, HD, OG)

**Target Occupations** (all HW, HD, HS, OG)

- General and Operations Managers
- Project Management Specialists
- Accountants and Auditors
- Financial Managers
- Sales Managers
## Business, Management, & Administration

### Top Target Occupations in Business, Management, and Administration, Southeast Minnesota 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Empl</th>
<th>Mean Ann Wages $</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-1021</td>
<td>General and Operations Managers</td>
<td>1,930</td>
<td>$102,600</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-1198</td>
<td>Project Management Specialists and Business Operations Specialists, All Other</td>
<td>1,230</td>
<td>$65,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-2011</td>
<td>Accountants and Auditors</td>
<td>1,024</td>
<td>$71,200</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-3031</td>
<td>Financial Managers</td>
<td>539</td>
<td>$112,500</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-2022</td>
<td>Sales Managers</td>
<td>373</td>
<td>$107,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-2052</td>
<td>Personal Financial Advisors</td>
<td>121</td>
<td>$129,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-1022</td>
<td>Wholesale and Retail Buyers, Except Farm Products</td>
<td>90</td>
<td>$62,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>AG</td>
<td></td>
</tr>
<tr>
<td>15-2031</td>
<td>Operations Research Analysts</td>
<td>72</td>
<td>$79,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>41-9031</td>
<td>Sales Engineers</td>
<td>63</td>
<td>$94,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-2033</td>
<td>Fundraising Managers</td>
<td>52</td>
<td>$99,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
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</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
Engineering, Manufacturing, & Technology

Baseline Worst-Case Scenario 3-Year Forecast for Engineering, Manufacturing, and Technology Careers, Southeast Minnesota 2021Q1

Chmura Economics JobsEQ, 2021Q1 dataset.
Engineering, Manufacturing, & Technology

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, Southeast Minnesota 2021Q1

- Industrial Machinery Mechanics ($53,900)
- Maintenance and Repair Workers, General ($44,900)
- Construction Managers ($101,900)
- Industrial Engineers ($78,100)
- First-Line Supervisors of Mechanics, Installers, and Repairers ($70,900)
- Plumbers, Pipefitters, and Steamfitters ($71,400)
- Mechanical Engineers ($77,000)
- Electricians ($62,600)
- Carpenters ($52,900)
- Heavy and Tractor-Trailer Truck Drivers ($50,300)
- Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic ($39,000)
- Food Batchmakers ($37,500)
- Cleaners of Vehicles and Equipment ($31,400)
- Automotive and Watercraft Service Attendants ($33,800)
- Helpers-Production Workers ($36,200)
- Assemblers and Fabricators, All Other ($35,600)
- Packers and Packagers, Hand ($30,700)
- Inspectors, Testers, Sorters, Sampiers, and Weighers ($42,700)
- Laborers and Freight, Stock, and Material Movers, Hand ($35,500)
- Team Assemblers ($35,500)

Certification Gaps

- Class A Commercial Driver's License (CDL-A)
- Automotive Service Excellence (ASE) Certification
- Class B Commercial Driver's License (CDL-B)
- Certified Arborist
- Light Commercial Refrigeration Certification (NATE Certified)
- Project Management Professional (PMP)
- Certified Welder
- Certified Pesticide Applicator
- The National Institute for Metalworking Skills (NIMS) Certification
- Automobile Technician: Engine Repair (Test A1)
## Engineering, Manufacturing, & Technology
Southeast MN, 2021Q1

### Target Occupations (all HW, HD, HS)
- Industrial Engineers (OG, AG)
- Construction Managers (OG)
- Cost Estimators (AG)
- Logisticians
- Computer Hardware Engineers (AG)

### Gateway Occupations
- Heavy and Tractor-Trailer Truck Drivers (HS, OG)
- Maintenance and Repair Workers, General (HD, OG)
- Carpenters (OG)
- Construction Laborers
- Automotive Service Technicians (HS, AG)

<table>
<thead>
<tr>
<th>Origin Occupations</th>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laborers and Freight, Stock Movers</td>
<td></td>
<td>Parking Lot Attendants</td>
</tr>
<tr>
<td>Team Assemblers</td>
<td></td>
<td>Retail Sales Workers</td>
</tr>
<tr>
<td>Passenger Vehicle Drivers (HD)</td>
<td></td>
<td>Stockers and Order Fillers</td>
</tr>
<tr>
<td>Landscaping and Groundskeeping Workers (HD)</td>
<td></td>
<td>Janitors and Cleaners</td>
</tr>
<tr>
<td>Slaughterers and Meat Packers (HD)</td>
<td></td>
<td>Customer Service Reps</td>
</tr>
</tbody>
</table>
# Engineering, Manufacturing, & Technology

## Southeast Minnesota

### Top Target Occupations in Engineering, Manufacturing, and Technology, 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Emplo</th>
<th>Mean Ann Wages $</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-2112</td>
<td>Industrial Engineers</td>
<td>473</td>
<td>$78,100</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>11-9021</td>
<td>Construction Managers</td>
<td>429</td>
<td>$101,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-1051</td>
<td>Cost Estimators</td>
<td>182</td>
<td>$62,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>13-1081</td>
<td>Logisticians</td>
<td>147</td>
<td>$64,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>17-2061</td>
<td>Computer Hardware Engineers</td>
<td>54</td>
<td>$101,200</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>49-3011</td>
<td>Aircraft Mechanics and Service Technicians</td>
<td>42</td>
<td>$67,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
<tr>
<td>51-9162</td>
<td>Computer Numerically Controlled Tool Programmers</td>
<td>39</td>
<td>$61,100</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
Baseline Worst-Case Scenario 3-Year Forecast for Agriculture, Food, and Natural Resources Careers, Southeast Minnesota 2021Q1

Chmura Economics JobsEQ, 2021Q1 dataset.
Agriculture, Food, & Natural Resources

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Southeast Minnesota 2021Q1

Certification Gaps

- Certified Pesticide Applicator
- Certified Arborist
- Registered Veterinary Technician (RVT)
- Light Commercial Refrigeration Certification (NATE Certified)
- Certified Professional Dog Trainer (CPDT)
- Laboratory Animal Technician (LAT)
- Class B Commercial Driver’s License (CDL-B)
- EPA Universal Certification
- HAZMAT
- EPA Section 608 Certification (EPA 608)
### Agriculture, Food, & Natural Resources

**Southeast MN, 2021Q1**

#### Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscaping &amp; Groundskeeping Workers (HD)</td>
<td>Compliance Officers</td>
</tr>
<tr>
<td>Meat, Poultry, &amp; Fish Cutters &amp; Trimmers (HD)</td>
<td>Laborers / Freight Movers</td>
</tr>
<tr>
<td>Farmworkers, Farm, Ranch, &amp; Aquacultural Animals</td>
<td>Stockers and Order Fillers</td>
</tr>
<tr>
<td>Food Batchmakers (HD)</td>
<td>Cooks</td>
</tr>
<tr>
<td>Farmworkers &amp; Laborers, Crop, Nursery &amp; Greenhouse Customer Service Reps</td>
<td></td>
</tr>
</tbody>
</table>

#### Gateway Occupations

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC Mechanics &amp; Installers (HS, OG, AG)</td>
<td></td>
</tr>
<tr>
<td>Telecommunications Equipment Installers (HS, AG)</td>
<td></td>
</tr>
<tr>
<td>Supervisors of Landscaping Workers (HD, OG)</td>
<td></td>
</tr>
<tr>
<td>Telecommunications Line Installers &amp; Repairers</td>
<td></td>
</tr>
<tr>
<td>Chemical Plant &amp; System Operators (HD, AG)</td>
<td></td>
</tr>
</tbody>
</table>

#### Target Occupations (all HW, HD, HS)

- Veterinarians (OG, AG)
- Aircraft Mechanics & Service Technicians (AG)
- Biological Science Teachers
- Urban & Regional Planners (AG)
- Buyers & Purchasing Agents
## Agriculture, Food, & Natural Resources

### Top Target Occupations in Agriculture, Food, and Natural Resources, Southeast Minnesota 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Emp</th>
<th>Mean Ann Wages (^2)</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-1131</td>
<td>Veterinarians</td>
<td>110</td>
<td>$94,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>49-3011</td>
<td>Aircraft Mechanics and Service Technicians</td>
<td>42</td>
<td>$67,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>AG</td>
<td></td>
</tr>
<tr>
<td>25-1042</td>
<td>Biological Science Teachers, Postsecondary</td>
<td>37</td>
<td>$79,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-3051</td>
<td>Urban and Regional Planners</td>
<td>35</td>
<td>$79,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td>AG</td>
</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
Summary and Discussion
Discussion Question 1

What piece of the data surprised, inspired, validated, or challenged you?
Discussion Question 2

From your perspective, what are the most important considerations in these data for Career and Technical Education programs?
What is one barrier that you can help remove for BIPOC students?
What additional information will you seek out next?
What changes or evaluations to your program will you prioritize next as a result of this data?
Thank you!

If you have questions about this report, please contact:
Erin Olson, Director of Strategic Research,
erin@realtimetalentmn.org
Appendix