

What's in demand? Fastest Growing Careers

Alberta

Source: <https://work.alberta.ca/labour/occupational-demand-and-supply-forecast.html>

Careers from Alberta's Occupational Demand and Supply Outlook October 2016

Sub-bullets of Careers from NOC-National Occupational Classification-Government of Canada

Connections to Math from examining Duties of Occupations on ALIS website

The following are a few of the occupations with a forecasted labour shortage of more than 1,000 workers by 2025:

Careers	Connections to Math
<p>Managers in construction and transportation (NOC A37)</p> <ul style="list-style-type: none"> - Construction Managers - Residential Home Builders /Renovators - Transportation Managers 	<ul style="list-style-type: none"> - Spatial Reasoning - Data & Statistics Analysis - Geometric Reasoning-2-D & 3-D - Financial Planning & Budgets - Measurement - Problem-Solving - Logical Reasoning (scheduling) - Estimation - Visualization - Probability - Modelling - Additive & Multiplicative Thinking - Proportional Reasoning
<p>Computer and information systems professionals (NOC C07)</p> <ul style="list-style-type: none"> - Information Systems Analysts - Database Analysts & Data Administrators - Software Engineers - Computer Programmers & Interactive Media Developers - Web Designers & Developers 	<ul style="list-style-type: none"> - Functions & Relations - Logical Reasoning (programming) - Financial Planning & Budgets - Data Management & Statistics - Problem-Solving - Estimation - Visualization - Modelling - Probability - Spatial & Geometric Reasoning (design) - Algebraic & Algorithmic Thinking - Additive & Multiplicative Thinking

Nurse supervisors and registered nurses
(NOC D11)

- Data Management
- Additive & Multiplicative Thinking
- Proportional Reasoning & calculations
- Statistics & Probability
- Estimation
- Problem-Solving
- Measurement
- Logical Reasoning
- Financial Planning & Budgets
- Geometric Reasoning

Medical technologists and technicians (NOC D21)

- Medical Laboratory Technologists
- Veterinary Technologists & Technicians
- Respiratory Therapists & Cardiopulmonary Techs
- Medical Radiation, Sonographer, EEG & Diagnostic Techs

- Data Management & Statistics
- Additive & Multiplicative Thinking
- Spatial Reasoning
- Measurement
- Estimation
- Problem-Solving
- Logical Reasoning
- Geometric Reasoning
- Proportional Reasoning

Sales and service supervisors (NOC G01)

- Retail Trade Supervisors
- Food Service Supervisors
- Executive Housekeepers

- Data Management
- Statistics & Probability
- Estimation
- Financial Planning & Budgeting
- Problem-Solving
- Spatial Reasoning & Visualization
- Logical Reasoning
- Measurement
- Additive & Multiplicative Thinking

Childcare and home support workers (NOC G81)

- Homecare workers
- Teacher Assistants

- Logical Reasoning
- Problem Solving
- Spatial Reasoning
- Data Management
- Statistics & Probability
- Measurement
- Visualization
- Estimation
- Additive & Multiplicative Thinking
- Proportional Reasoning

Motor vehicle and transit drivers (NOC H71)

- Truck Drivers
- Bus, Subway & other transit operators
- Taxi, Limo, Delivery, Courier Drivers

- Spatial Reasoning
- Data & Statistics Analysis
- Geometric Reasoning-2-D & 3-D
- Financial Planning & Budgets
- Measurement
- Estimation
- Problem-Solving
- Logical Reasoning (scheduling)
- Financial Planning & Budgeting
- Additive & Multiplicative Thinking

Contractors, operators and supervisors in agriculture, horticulture and aquaculture (NOC I01)

- Farmers & Farm Managers
- Agricultural Contractors & Managers
- Farm Supervisors & Specialized Livestock Workers
- Nursery & Greenhouse Managers
- Landscaping & Grounds Maintenance
- Horticulture

- Financial Planning & Budgeting
- Spatial Reasoning
- Data & Statistics Analysis
- Measurement
- Problem-Solving
- Logical Reasoning
- Estimation
- Modelling
- Visualization
- Geometric Reasoning
- Additive & Multiplicative Thinking
- Proportional Reasoning

Canada

Source: COPS – Canadian Occupational Projection System

<http://occupations.esdc.gc.ca/sppc-cops/c.4nt.2nt@-eng.jsp?cid=39>

Figure 6 – Ten Fastest Growing Occupations, 2011-2020

Career	Growth Rate (2011-2020)	Connections to Math
<p>NOC 081 Primary Production Managers</p> <p>- Managers in natural resources production & fishing</p> <ul style="list-style-type: none"> - Mining - Forestry - Gas Field Operations - Oil Well Servicing - Mine or Quarry Manager - Shore Captain-fishing 	3.06	<p>Bachelor's Degree in Science of the field and related experience</p> <ul style="list-style-type: none"> - Spatial Reasoning - Data & Statistics Analysis - Geometric Reasoning-2-D & 3-D - Financial Planning & Budgets - Functions & Relations - Measurement - Problem-Solving - Logical Reasoning (scheduling) - Estimation - Calculus - Visualization - Probability - Modelling - Additive & Multiplicative Thinking - Proportional Reasoning
<p>NOC 823 Underground Miners, Oil & Gas Drillers, etc.</p> <p>- Underground production & development miners</p> <p>- Oil & gas well drillers, servicers, testers & related workers</p>	2.77	<p>Completion of Secondary School – trade certification in some provinces – safety certifications</p> <ul style="list-style-type: none"> - Spatial Reasoning - Geometric Reasoning - Measurement - Problem-Solving - Logical Reasoning - Visualization - Estimation - Data Management

NOC 311 Physicians, Dentists & Veterinarians	2.56	Post-secondary degrees as required <ul style="list-style-type: none"> - Data Management - Additive & Multiplicative Thinking - Proportional Reasoning & calculations - Statistics & Probability - Estimation - Functions & Relations - Problem-Solving - Measurement - Visualization - Calculus - Logical Reasoning - Financial Planning & Budgets - Spatial Reasoning - Geometric Reasoning
NOC 112 Human Resources & Business Service Professionals <ul style="list-style-type: none"> - Human resources professionals - Business Management Consulting, Advertising, Marketing & Public Relations 	2.49	University Degree or college diploma, related certifications or designations <ul style="list-style-type: none"> - Data Management - Additive & Multiplicative Thinking - Proportional Reasoning & calculations - Statistics and Probability - Calculus - Logical Reasoning - Financial Planning & Budgets - Estimation - Functions & Relations - Problem-Solving - Measurement
NOC 648 Other Occupations in Personal Service (now NOC 656) <ul style="list-style-type: none"> - Image, social consultants - Estheticians, electrologists - Pet Groomers & animal care workers - Veterinary & Zoo attendant 	2.48	Secondary school & specialized training courses <ul style="list-style-type: none"> - Logical Reasoning - Financial Planning & Budgets - Estimation - Functions & Relations - Problem-Solving - Measurement - Data Management - Additive & Multiplicative Thinking - Proportional Reasoning & calculations - Spatial Reasoning - Geometric Reasoning - Visualization

NOC 822 Supervisors, Mining and Oil & Gas	2.39	Completion of a college or university program in mining technology or engineering
<ul style="list-style-type: none"> - Supervisors, mining & quarrying - Contractors & Supervisors, Oil & Gas drilling & services 		<ul style="list-style-type: none"> - Spatial Reasoning - Data & Statistics Analysis - Geometric Reasoning-2-D & 3-D - Financial Planning & Budgets - Measurement - Problem-Solving - Logical Reasoning (scheduling) - Estimation - Visualization - Probability - Modelling - Additive & Multiplicative Thinking - Proportional Reasoning
NOC 314 Therapy and Assessment Professionals	2.22	University degrees with specializations
<ul style="list-style-type: none"> - Audiologists - Physiotherapists - Occupational Therapists - Recreational Therapists - Athletic Therapists 		<ul style="list-style-type: none"> - Data Management - Additive & Multiplicative Thinking - Proportional Reasoning & calculations - Statistics & Probability - Estimation - Functions & Relations - Problem-Solving - Measurement - Visualization - Calculus - Logical Reasoning - Financial Planning & Budgets - Spatial Reasoning - Geometric Reasoning

NOC 841 Mine Service Workers and Operators in Oil	2.19	Secondary school, company training, licensing or certification
<ul style="list-style-type: none"> - Underground mine service & support workers - Oil and gas well drilling and services operators 		<ul style="list-style-type: none"> - Spatial Reasoning - Data & Statistics Analysis - Geometric Reasoning-2-D & 3-D - Measurement - Problem-Solving - Logical Reasoning - Estimation - Visualization - Probability - Modelling - Additive & Multiplicative Thinking - Proportional Reasoning
NOC 522 Photographers, Graphic Arts Technicians, etc.	2.18	College training or bachelor's degree
<ul style="list-style-type: none"> - Photographers - Film & Video Operators - Graphic Arts Technicians - Broadcast Technicians - Audio & video recording technicians - Other technical, coordinating and support occupations in motion pictures, broadcasting & performing arts 		<ul style="list-style-type: none"> - Spatial Reasoning - Data & Statistics Analysis - Geometric Reasoning-2-D & 3-D - Financial Planning & Budgets (for some) - Measurement - Problem-Solving - Logical Reasoning - Estimation - Visualization - Probability - Modelling - Additive & Multiplicative Thinking - Proportional Reasoning
NOC 315 Nurse Supervisors and Registered Nurses	2.16	College training or bachelor's degree
		<ul style="list-style-type: none"> - Data Management - Additive & Multiplicative Thinking - Proportional Reasoning & calculations - Statistics & Probability - Estimation - Problem-Solving - Measurement - Logical Reasoning - Financial Planning & Budgets - Geometric Reasoning - Visualizing & Modelling

International

Selected STEM (Science, Technology, Engineering, Mathematics) occupations with many job openings, projected 2012-22 from US Bureau of Labour - (cited on Occupational Outlook Quarterly, Spring 2014)

Table 2: Selected STEM occupations with many job openings, projected 2012–22

Occupation	Job openings, projected 2012–22	Employment		Median annual wage, May 2013	Typical entry-level education ¹
		2012	Projected 2022		
Software developers, applications	218,500	613,000	752,900	\$92,660	Bachelor's degree
Computer systems analysts	209,600	520,600	648,400	81,190	Bachelor's degree
Computer user support specialists ²	196,900	547,700	658,500	46,620	Some college, no degree
Software developers, systems software	134,700	405,000	487,800	101,410	Bachelor's degree
Civil engineers	120,100	272,900	326,600	80,770	Bachelor's degree
Computer programmers	118,100	343,700	372,100	76,140	Bachelor's degree
Sales representatives, wholesale and manufacturing, technical and scientific products ²	111,800	382,300	419,500	74,520	Bachelor's degree
Network and computer systems administrators	100,500	366,400	409,400	74,000	Bachelor's degree
Mechanical engineers	99,700	258,100	269,700	82,100	Bachelor's degree
Computer and information systems managers ³	97,100	332,700	383,600	123,950	Bachelor's degree
Industrial engineers	75,400	223,300	233,400	80,300	Bachelor's degree
Architectural and engineering managers ³	60,600	193,800	206,900	128,170	Bachelor's degree

OECD (2016), *OECD Employment Outlook 2016*, OECD Publishing, Paris.

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