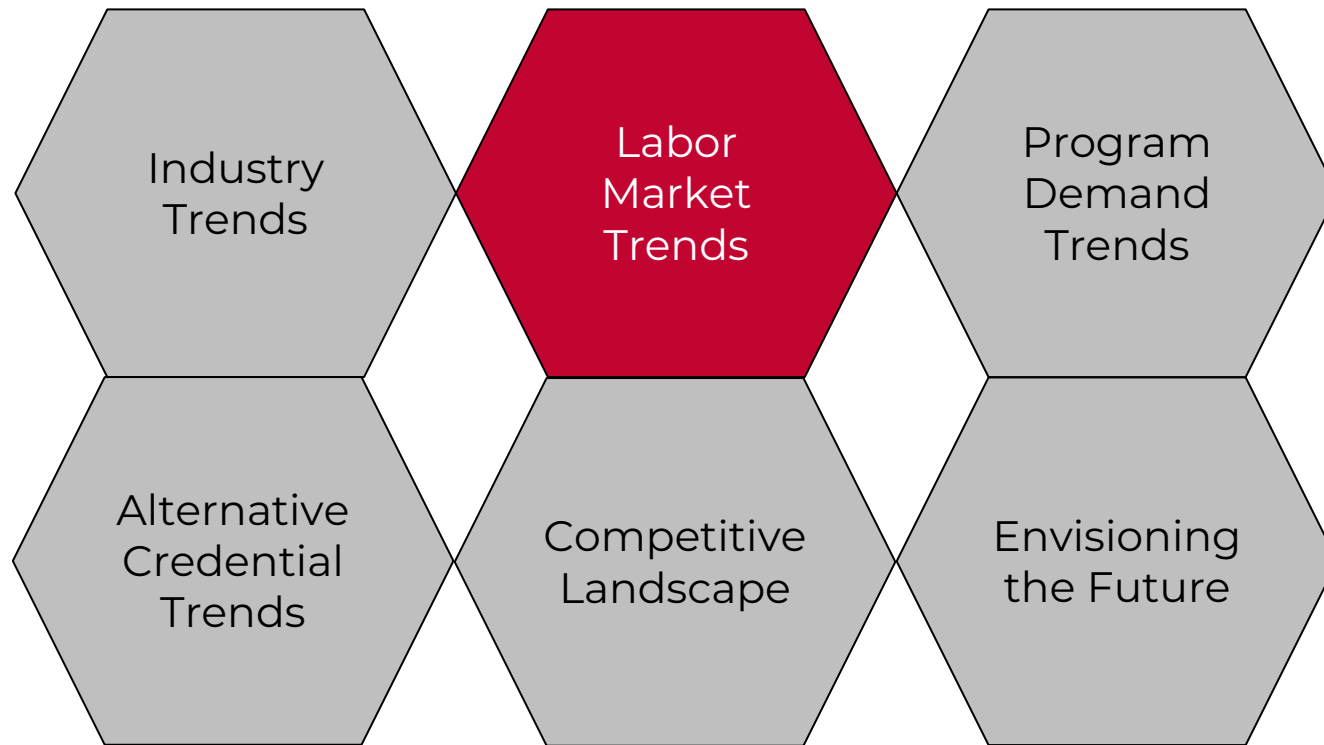


Overview Market Opportunity

The environmental scan includes an analysis of quantitative and qualitative data related to engineering and physical sciences landscape, labor market data, and competitive environment to inform Guelph's consideration of restructuring.



Labor Market Trends – Approach

- A labor market trends overview is used to understand more about occupation groups which describe occupations that share similar skill or role requirements.
- Regions for analysis include Ontario, Canada.

Note: The analysis isolated occupation groups to reflect accurate growth or declines as related to CEPS academic offerings.

Methodology: To create occupation employment projections, Lightcast builds three linear regressions using historic employee counts for each geography. The average of these linear regressions is taken, and the results are damped to curb excessive growth and decline. All trends are then adjusted to the trends of higher geography levels. This trend is considered the base projection. After the base projection is created, the annual growth rate is adjusted by occupation to the occupation projections produced by Canadian Occupations Projections System (COPS). These projections are then adjusted so that the projected occupation totals match the projected industry employment totals.

Occupation Trends Overview CEPS

Overall, employment is projected to grow 4.2% in Ontario from 2022 to 2028. Among the occupations forecasted to grow, some align with current SOE and PCMS unit offerings.

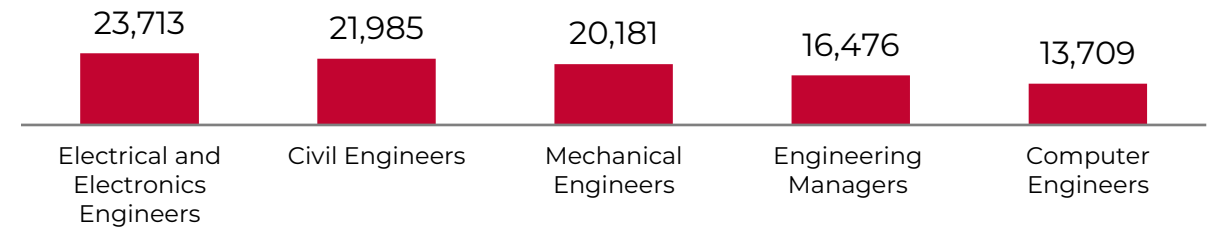
Popular Engineering Occupations:

- In 2028, **Electrical and Electronics Engineers** are forecasted to have the most available jobs by volume.
- Of the top five engineering occupations, **Mechanical Engineering & Computer Engineers** are the only programs of study offered at the University.

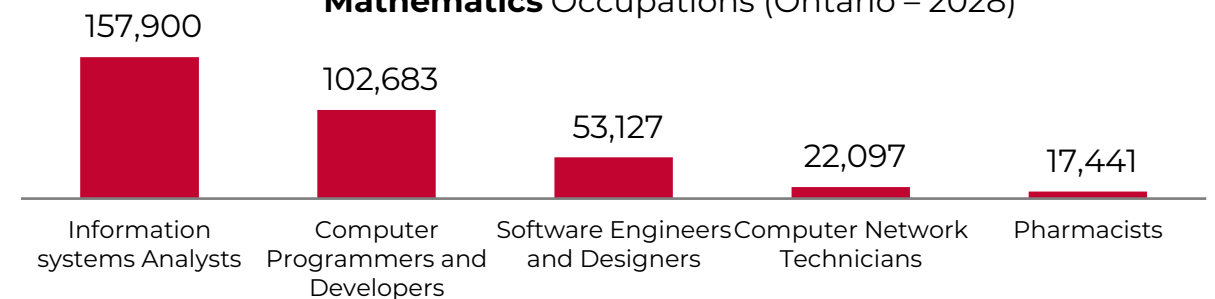
Popular Natural Science, Computer Science & Mathematics Occupations:

- Of top occupations, **Information Systems Analyst** are projected to have the most significant growth over the next six years
- Of the top five occupations, three of the five align with the SOCS current offerings. **Of the top fifteen occupations forecasted to grow are Pilots and Chemists.**

Popular **Engineering** Occupations (Ontario – 2028)

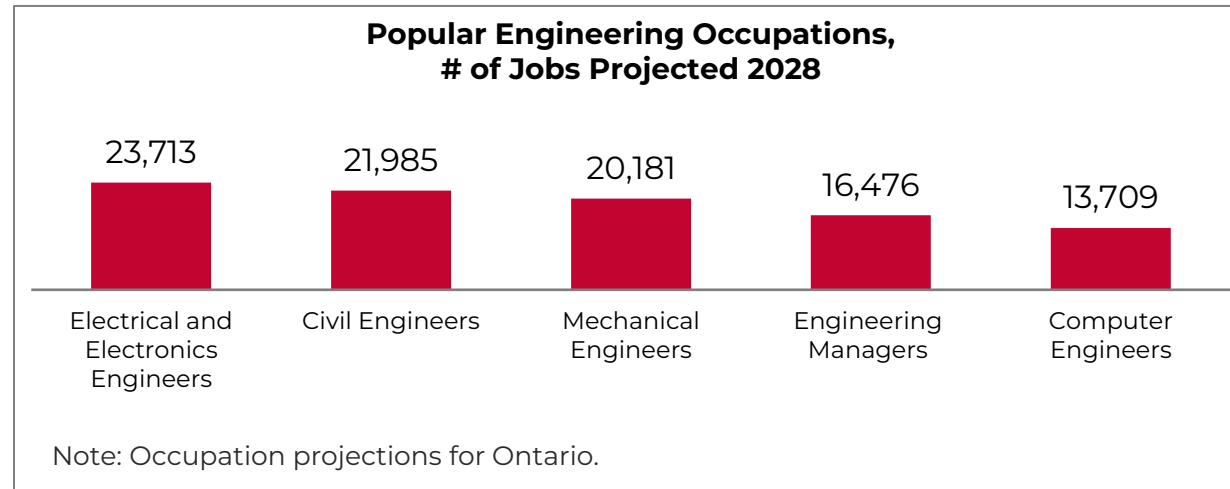


Popular **Natural Science, Computer Science & Mathematics** Occupations (Ontario – 2028)

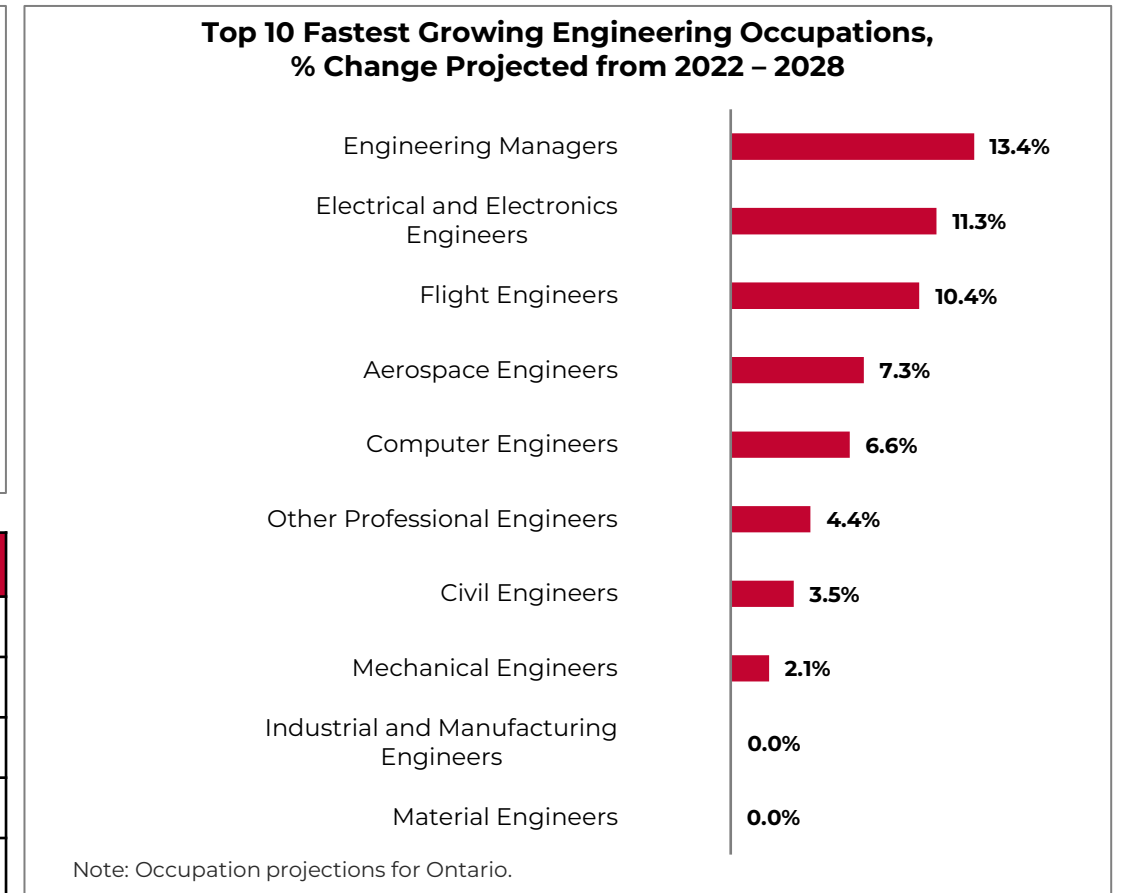


Occupation Trends: Engineering

Analysis of Engineering occupations illustrates balanced growth across multiple engineering disciplines by 2028.

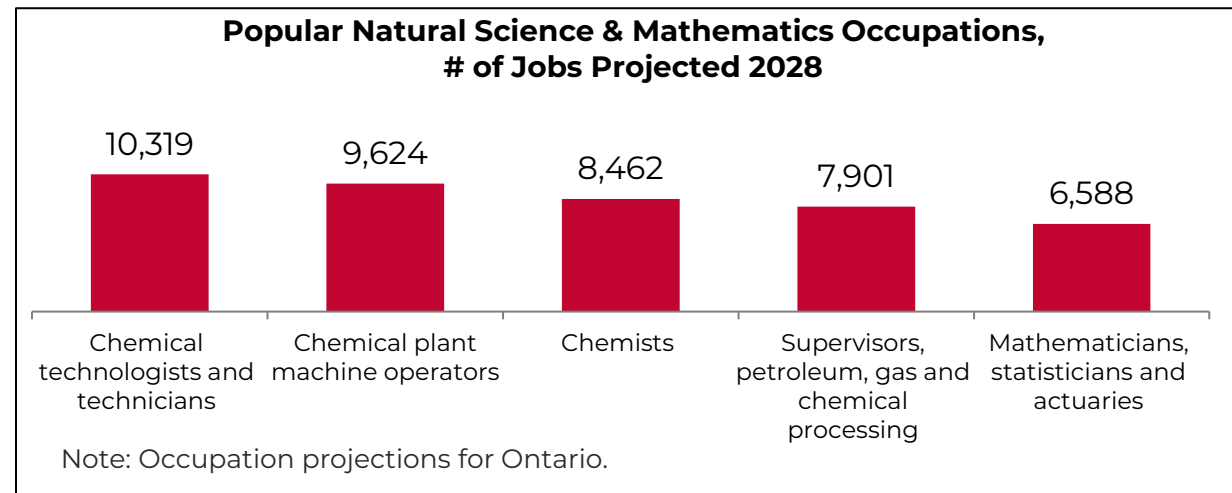


Occupation	Relevant Knowledge Base
Electrical Engineers	Engineering & Tech, Computers and Electronics, Design
Civil Engineers	Design, Engineering & Tech, Math, Building & Construction
Mechanical Engineers	Engineering & Tech, Math, Design, Mechanical, Physics
Engineering Management	Design, Complex Problem Solving
Computer Engineers	Computers and Electronics, Design, Critical Thinking

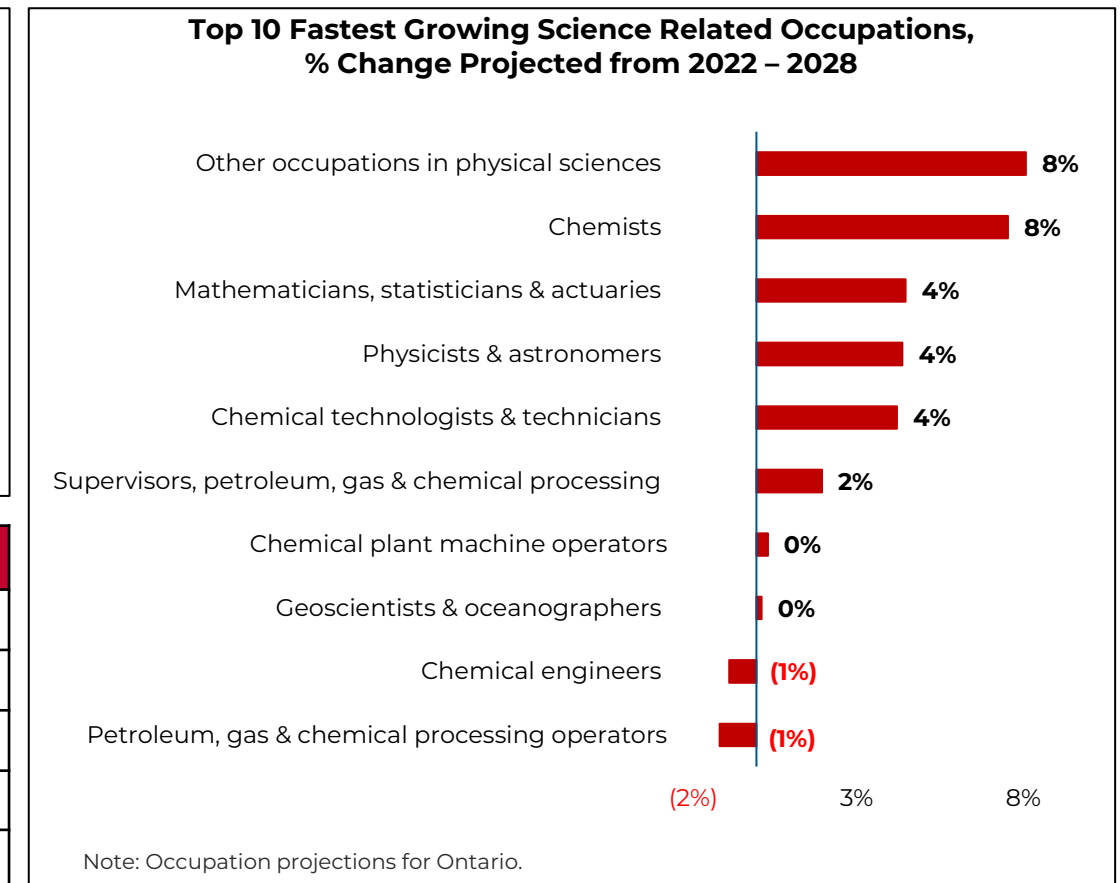


Occupation Trends: Physics, Chemistry, Math & Statistics

Analysis of PCMS-related programs show occupations such as Chemists, Mathematicians, and Physicists & Astronomers as forecasted with steady growth, though the total numbers are smaller.



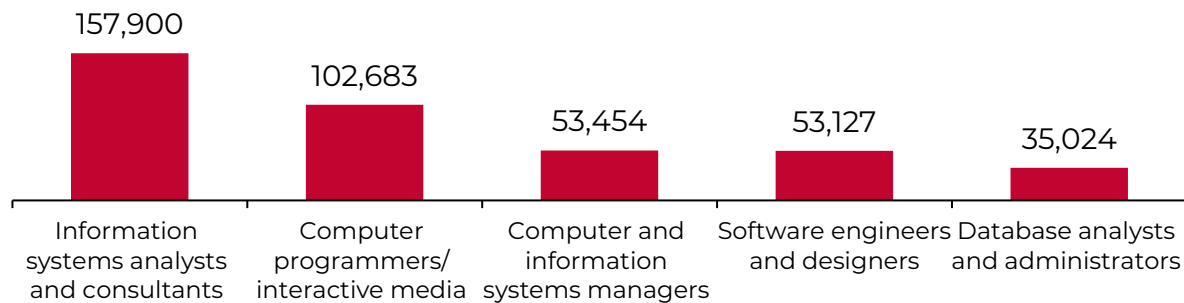
Occupation	Relevant Skills/Knowledge
Chemical Technologists	Chemistry, Math, Computers and Electronics
Chemical Plant Machine Op.	Production/processing, Chemistry, Mechanical, Safety
Chemists	Chemistry, Math, Production/processing, Critical Thinking
Supervisors, petroleum, gas	Administration and management, HR, Math, Mechanical
Mathematicians, statisticians	Math, Critical Thinking, Complex problem solving



Occupation Trends: Computer Science

Computer Science and related occupations forecast robust growth over the next six years showing high demand for occupations that require both technical and interpersonal skills.

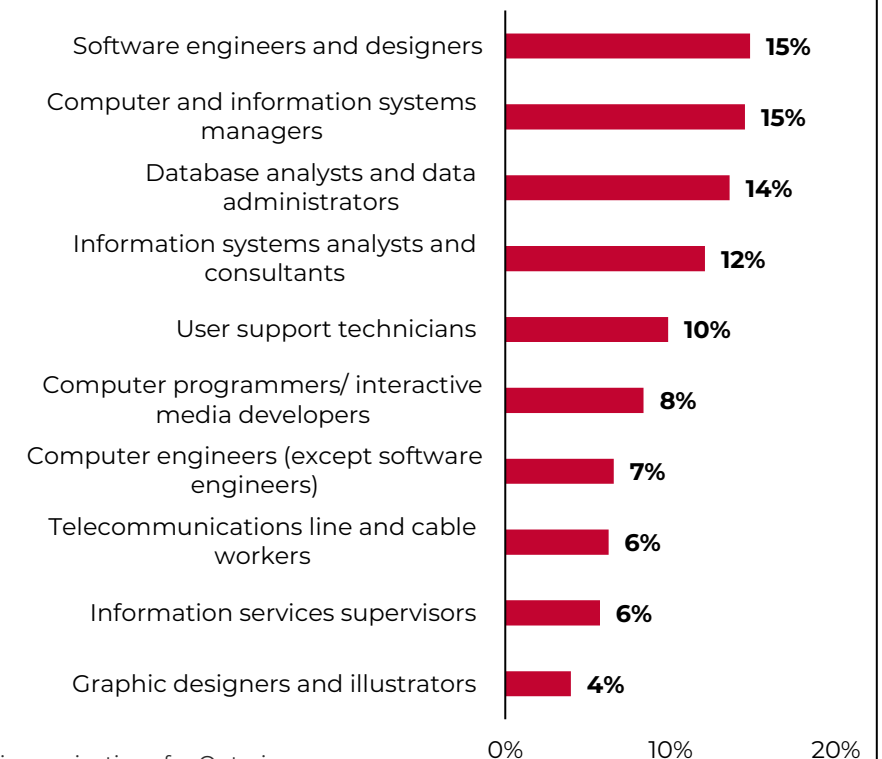
**Popular Computer Science Occupations,
of Jobs Projected 2028**



Note: Occupation projections for Ontario.

Occupation	Relevant Skills/Knowledge
Information Systems Analyst	Critical Thinking, Computers and Electronics, Math
Computer Programmers	Programming, Complex Problem Solving, Engineering
Computer Systems Manager	Critical Thinking, Management, Customer Service
Software Engineer/Designer	Complex Problem Solving, Math, Active Learning
Database Analysts/Admin.	Critical Thinking, Math, Telecommunications

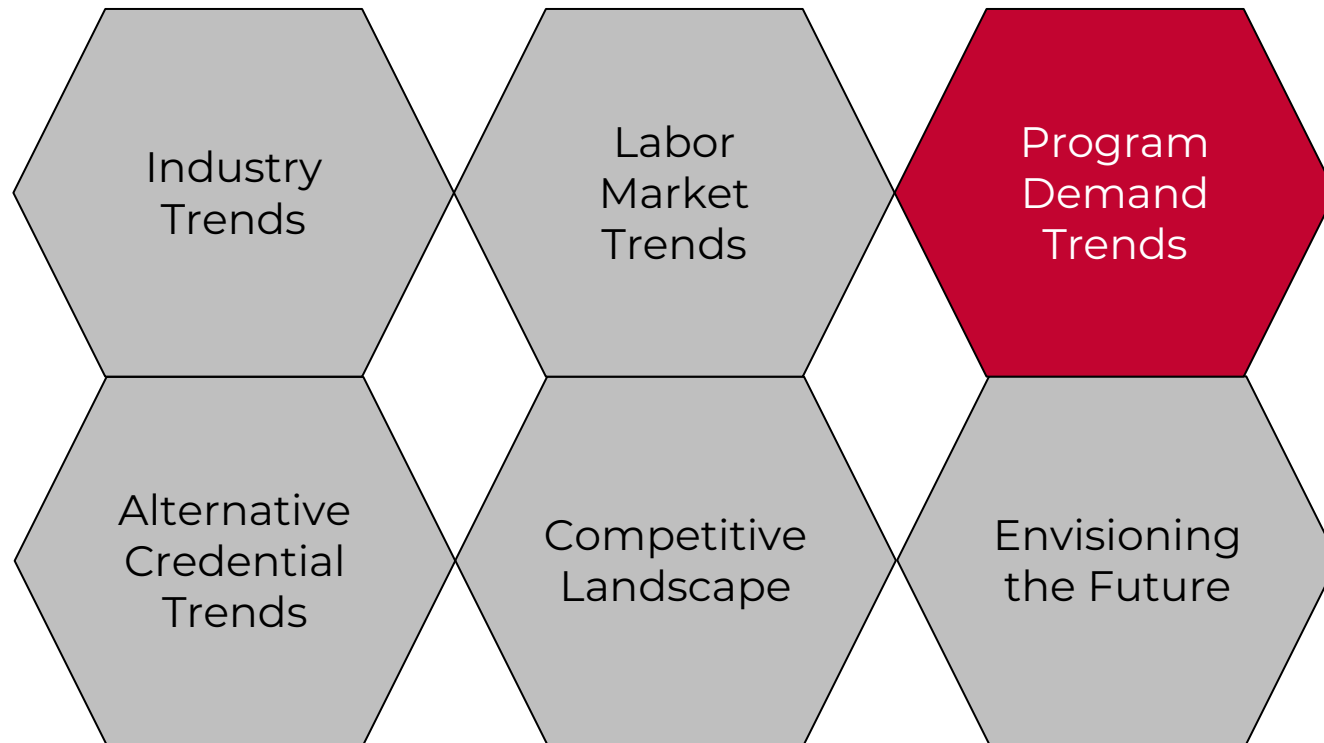
**Top 10 Fastest Growing Computer Science Occupations,
% Change Projected from 2022-2028**



Note: Occupation projections for Ontario.

Overview Market Opportunity

The environmental scan includes an analysis of quantitative and qualitative data related to engineering and physical sciences landscape, labor market data, and competitive environment to inform Guelph's consideration of restructuring.

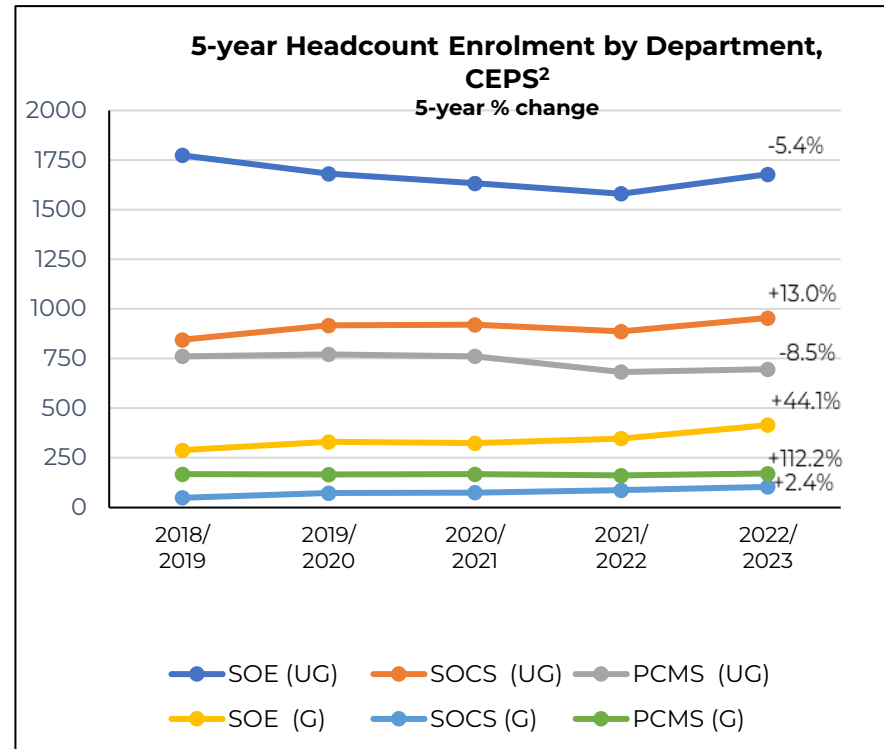
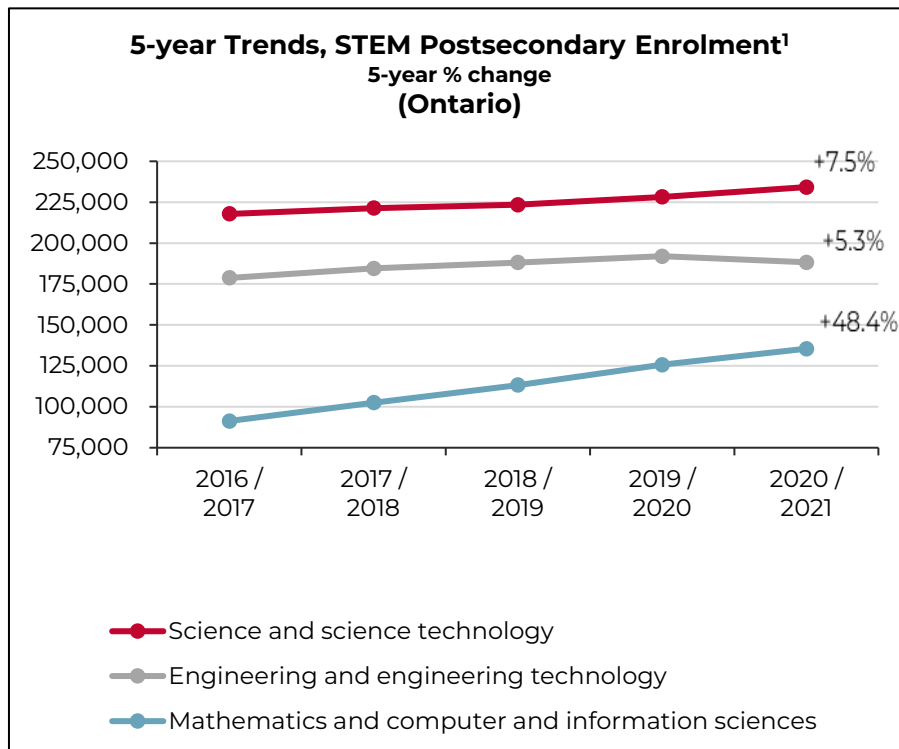


Program Demand Trends– Approach

- Program demand trends overview assesses academic programs or majors that show historical growth in enrolments or conferrals to project future program demand. When combined with labor market demand, it provides guidance to shape current or future academic offerings.
- Regions for analysis include Canada, Ontario, and the United States.

Program Demand Trends

Student demand for programs across Ontario show enrolments increasing in science and science technology programs as well as mathematics and computer sciences. U of Guelph mirrors enrolment growth in computer science and engineering.



Observations

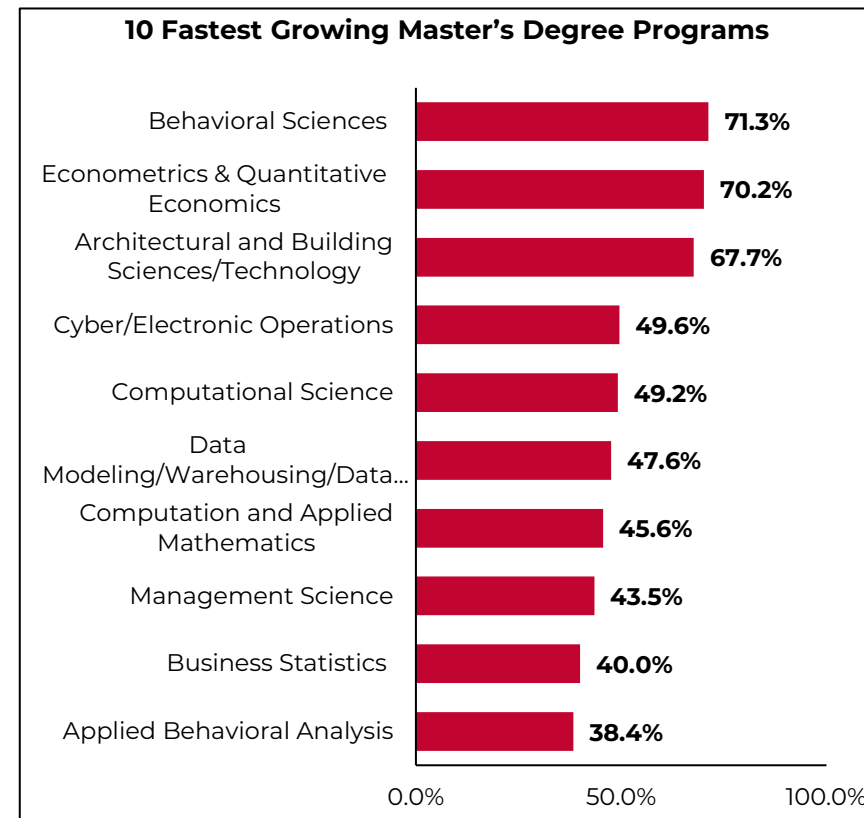
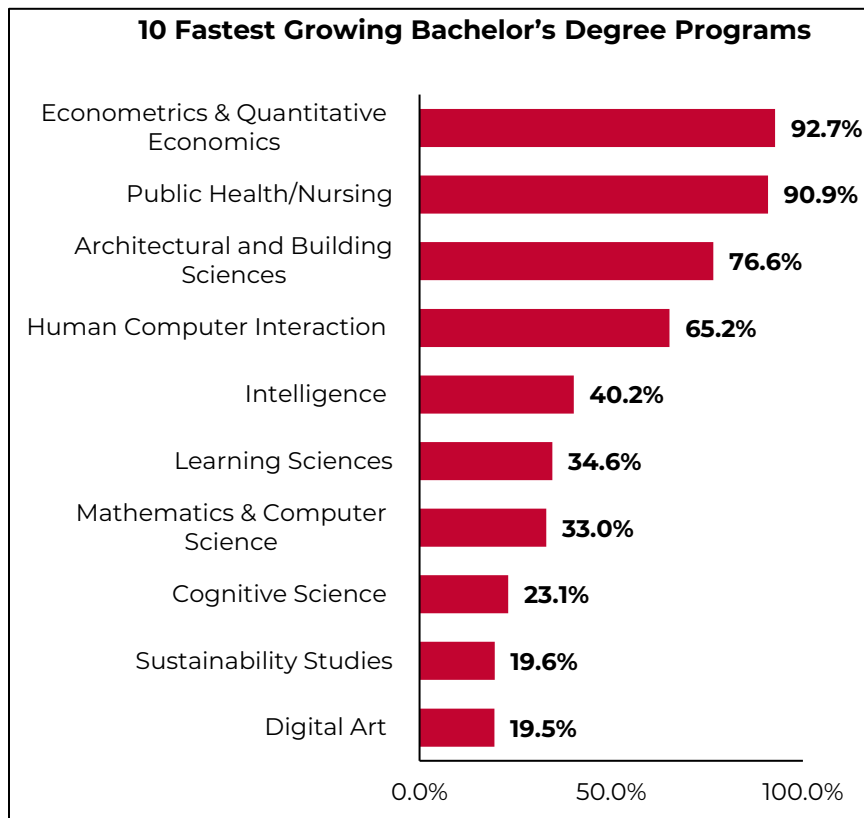
- SOCS** demonstrates the strongest growth across enrolments, especially in graduate program enrolment realizing a 112% increase over 5 years at U of Guelph.
- SOE** enrolments recognized consistent growth in graduate enrolments over 5 years.
- PCMS** enrolments show a decline of -8.5% over 5 years.
- Across Ontario, **Engineering & engineering technology** enrolments declined in 2020/21 during the pandemic.

Sources: Statcan; U of G 5-years Enrolment Dept Program

1. Disaggregated data by major not reported. The rise in Math & Computer and information sciences across Ontario is largely related to CS growth. 2. Due to organizational constraints, CEPS intentionally reduced new enrolments beginning in 2018.

Program Demand Trends



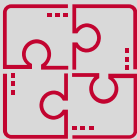



Analysis of the highest-annualized growth rate in degree completions in the U.S. reflects alignment with growth in the Healthcare and Scientific and Technical industries.



- Four of the top 10 fastest growing undergraduate degrees are multi- or interdisciplinary demonstrating student interest in combining multiple fields of study.
- The fastest growing master's degree programs require both technical expertise and complex problem-solving skills to adapt to evolving occupations and industries.

Program Demand Trends

Among the fastest growing bachelor degree programs, those with above average salaries drive much of the demand while advanced degrees are required for many fields in healthcare and scientific or technical occupations.

	Bachelor's Degrees	Master's Degrees
Fastest Growing Degrees	 <p>Econometrics & Quantitative Economics Employers are seeking more quantitative skill sets as the field of economics becomes more empirical Relevant programs: Math, Statistics, Computer Science</p>	 <p>Architectural and Building Sciences Modern building science demands a range of expertise to understand and improve building systems and infrastructure, blending historical structures with new technology Relevant Programs: Engineering, Physics, Chemistry, Math</p>
Fastest Growing Fields	 <p>Multi/Interdisciplinary Programs Growth in programs that combine the study of multiple fields demonstrates students' interest in exploring various disciplines Relevant Programs: Engineering, Computer Science, Chemistry, Physics, Math, Statistics</p>	 <p>Analytical & Data-Based Programs Rapidly evolving jobs in the technology sector drive interest in programs like cyber operations and database administration as students prepare to enter the workforce Relevant Programs: Computer Science, Math, Statistics,</p>
Emerging Fields	 <p>Sustainability Growing public awareness about environmental concerns, climate change, and green building, more students are demanding programs in related disciplines Relevant programs: Water Resource Engineering, Environmental Engineering, Math, Physics, Chemistry</p>	 <p>Management Sciences Graduate programs in management science trains a student to take a scientific approach to management. Businesses who are often science-related seek to manage complex problems with a scientific approach Relevant Programs: Math, Statistics, Computer Science</p>

Question for Discussion: Where are opportunities to maximize the CEPS academic portfolio to align with market demand?