



# ALBERTA'S SUPPLY OUTLOOK MODEL 2011 – 2021

## Education and Skills

## Highlights

- The proportion of Albertans with a post-secondary education is expected to increase from 52.6% to 59.3% over the forecast period of 2011 to 2021.
- More females than males, 62.3% compared to 56.4%, are expected to obtain a post-secondary education by 2021.
- More people will graduate from education, humanities, social science, physical and life sciences, and mathematical and computer sciences at universities than at college and trade institutions.
- More people will graduate from visual and performing arts, business, architecture and engineering, agriculture, health, and personal services at college and trade institutions than at universities.
- At college and trade institutions, a higher percentage of males than females will graduate from physical and life sciences, mathematical and computer sciences, architecture and engineering, and agriculture. Females are expected to have higher percentages in education, business, visual and performing arts, social sciences, and health.
- Of those Albertans with university degrees, females are more likely than males to graduate in education and health fields. Males are more likely to graduate in architecture and engineering and mathematical and computer science.

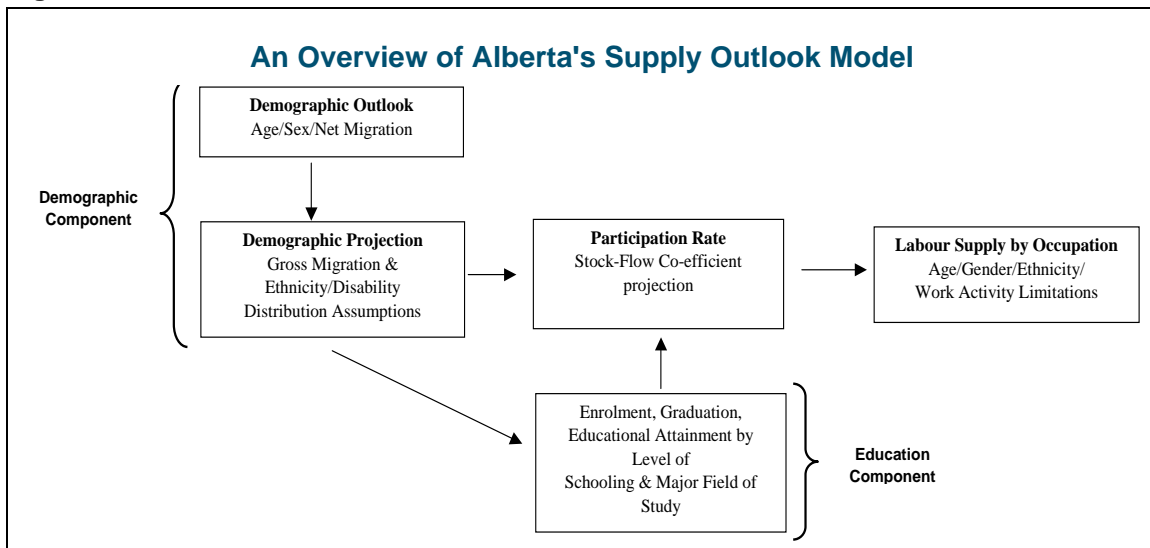
## Introduction

Every two years Alberta Human Services produces Alberta's Occupational Demand and Supply Outlook Models<sup>1</sup>. Alberta's supply outlook model provides labour supply forecasts by occupation covering a 10-year forecast period. The model contains 30 linked sub-models and more than 100,000 data series.

The education sub-model is a critical component of the supply outlook model. The model forecasts the number of enrolments and graduates across eleven major fields of study, listed in Appendix A, for different levels of schooling. These forecasts can be translated into the occupations where these people are expected to look for employment. Figure 1 provides an overview of the supply outlook model and the role of the education component in forecasting labour supply.

The first section of the report looks at the projected educational attainment levels of Alberta's population. The remainder of the report gives an analysis of the major fields of study at different post-secondary education levels and by gender. Following the text, Appendix B details the assumptions underlying the education forecasts and Appendix C shows the results of the model projections.

**Figure 1**

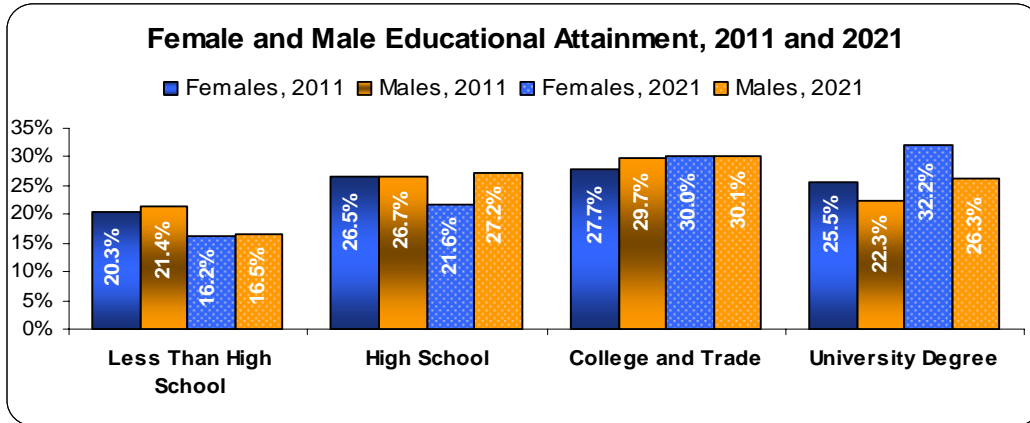


<sup>1</sup> Available at [http://employment.alberta.ca/documents/LMI/LMI-LMF\\_occ\\_demand\\_supply.pdf](http://employment.alberta.ca/documents/LMI/LMI-LMF_occ_demand_supply.pdf)

## Educational Attainment

Over the forecast period of 2011 to 2021, the proportion of people with a post-secondary education is expected to increase from 52.6% to 59.3%. Meanwhile, the other categories, less than high school and high school, are expected to decrease. Chart 1 compares the proportion of each gender projected to have attained each level of education in 2011 and 2021. It is expected that the proportion of females with post-secondary education in 2021 will exceed that of males, 62.3% compared to 56.4%.

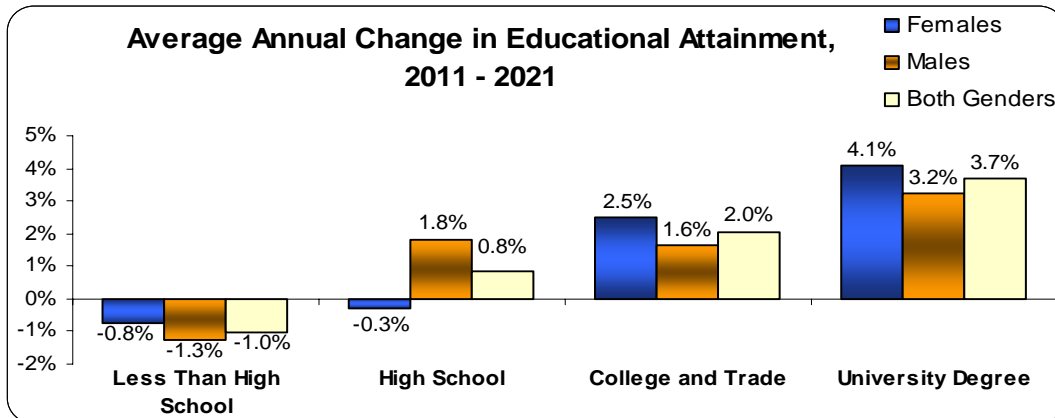
**Chart 1**



**Data Source:** Alberta's Occupational Supply Outlook Model, 2011-2021

Chart 2 shows the average annual change in educational attainment between 2011 and 2021 for males, females, and for both genders. Attainment of degrees shows the highest average annual change (+3.7%) while less than high school attainment has the lowest (-1.0%). Females are expected to have higher growth rates than males for post-secondary levels of attainment. Both genders will see a decline in levels for the less than high school category.

**Chart 2**

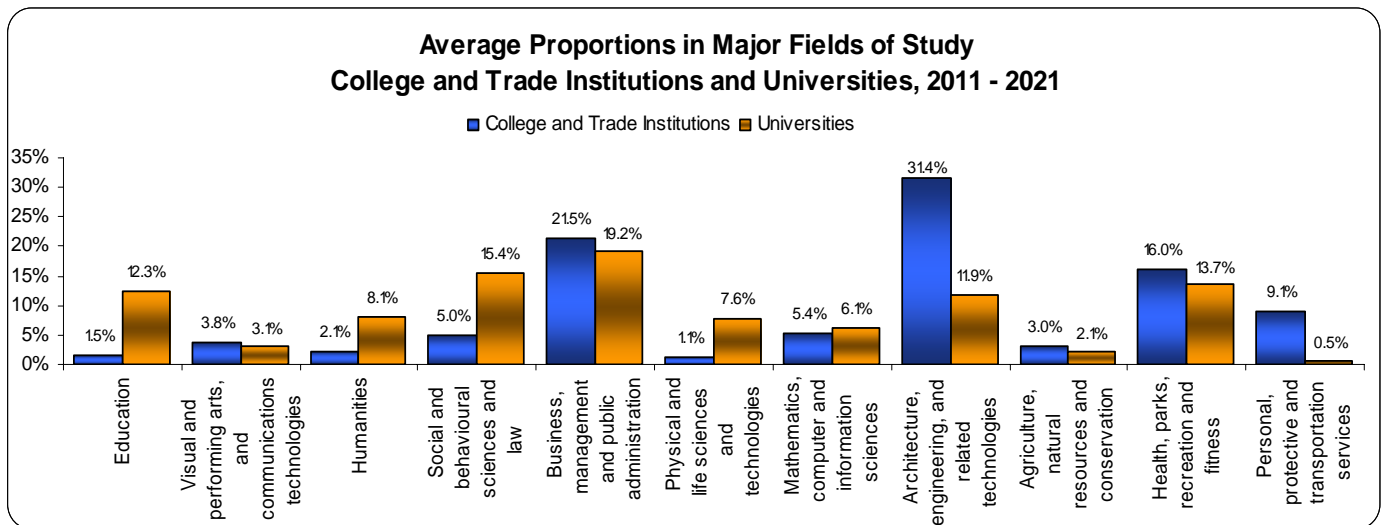


**Data Source:** Alberta's Occupational Supply Outlook Model, 2011-2021

## Major Fields of Study: College and Trade Institutions and Universities

Chart 3 compares the average proportions in each major field of study at college and trade institutions and at universities. Compared to college and trade institutions, universities will have higher proportions of graduates with education, humanities, social, science, physical and life science, and mathematical and computer science qualifications. Conversely, college and trade institutions will graduate higher proportions in the fields of visual and performing arts, business, architecture and engineering, agriculture, health, and personal services. These differences persist over the forecast period of 2011 to 2021.

**Chart 3**

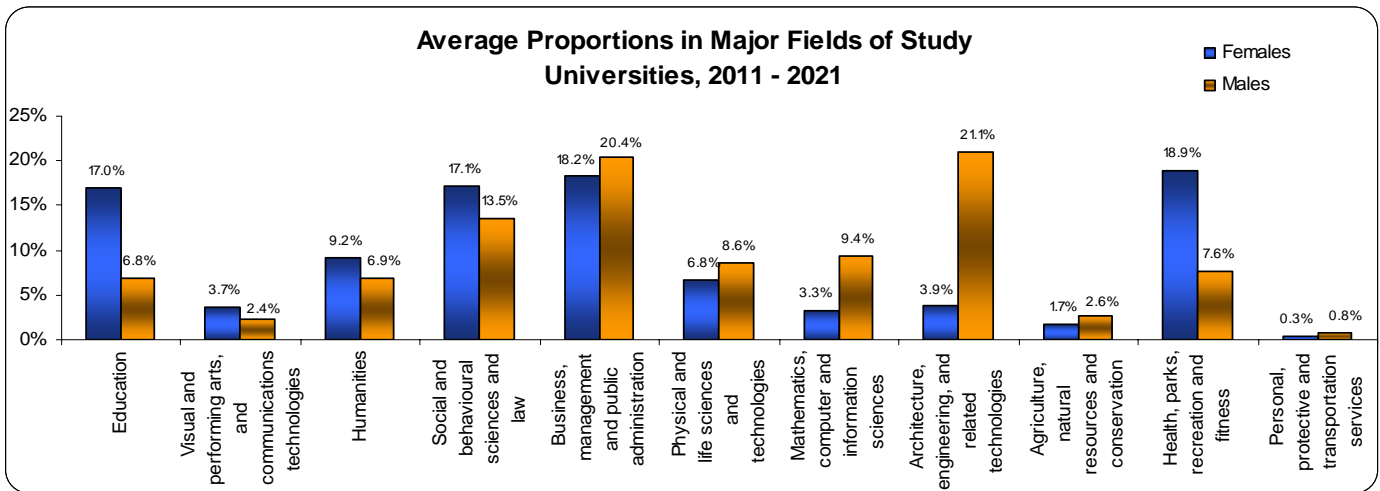


**Data Source:** Alberta's Occupational Supply Outlook Model, 2011-2021

## Major Fields of Study: Universities

Chart 4 shows the average proportions of all university graduates in each major field of study by gender for 2011 to 2021. A higher proportion of females than males is expected to graduate with qualifications in education, visual and performing arts, humanities, social science, and health. Males are expected to graduate in higher proportions in business, physical and life sciences, architecture and engineering, mathematical and computer sciences, agriculture, and personal services. This continues traditional gender patterns in fields of study.

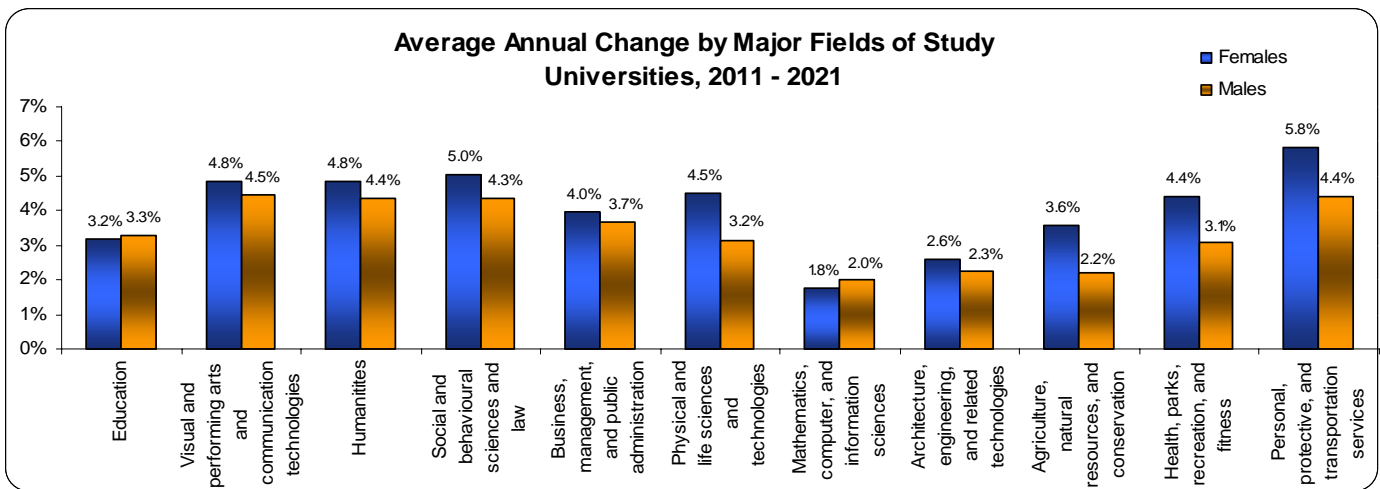
**Chart 4**



**Data Source:** Alberta's Occupational Supply Outlook Model, 2011-2021

Enrolment rates for females are expected to increase at a faster rate than for males over the forecast period. Growth rates for males are expected to exceed those of females in education, mathematical and computer sciences (Chart 5).

**Chart 5**

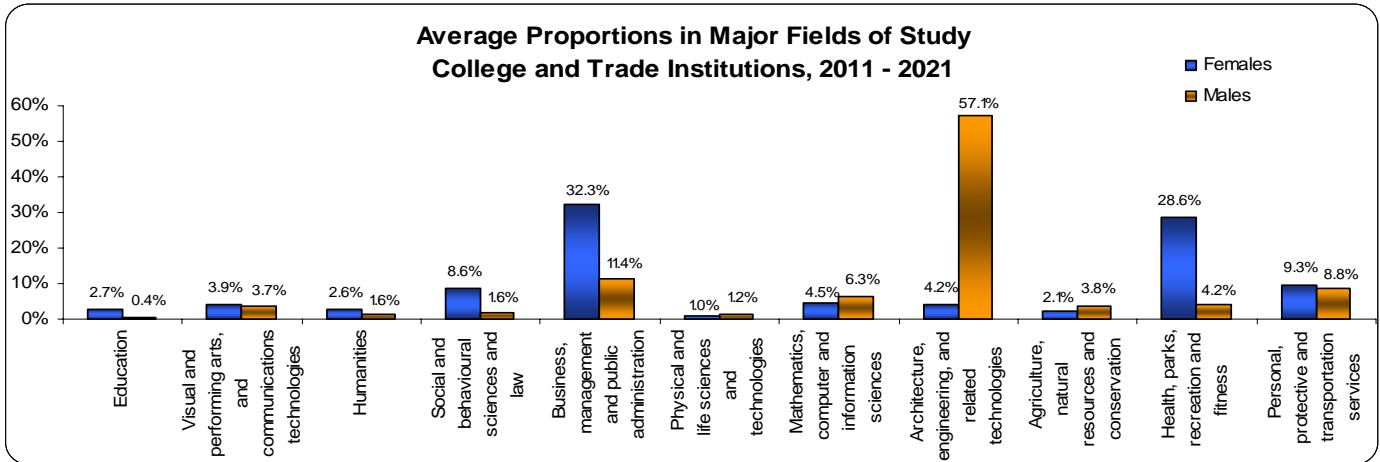


**Data Source:** Alberta's Occupational Supply Outlook Model, 2011-2021

## Major Fields of Study: College and Trade Institutions

Chart 6 compares the average proportions of all college and trade graduates in each major field of study by gender for 2011 to 2021. There are higher proportions of females than males with qualifications in most major fields of study, except for architecture and engineering with 57.1% of males compared to 4.2% of females.

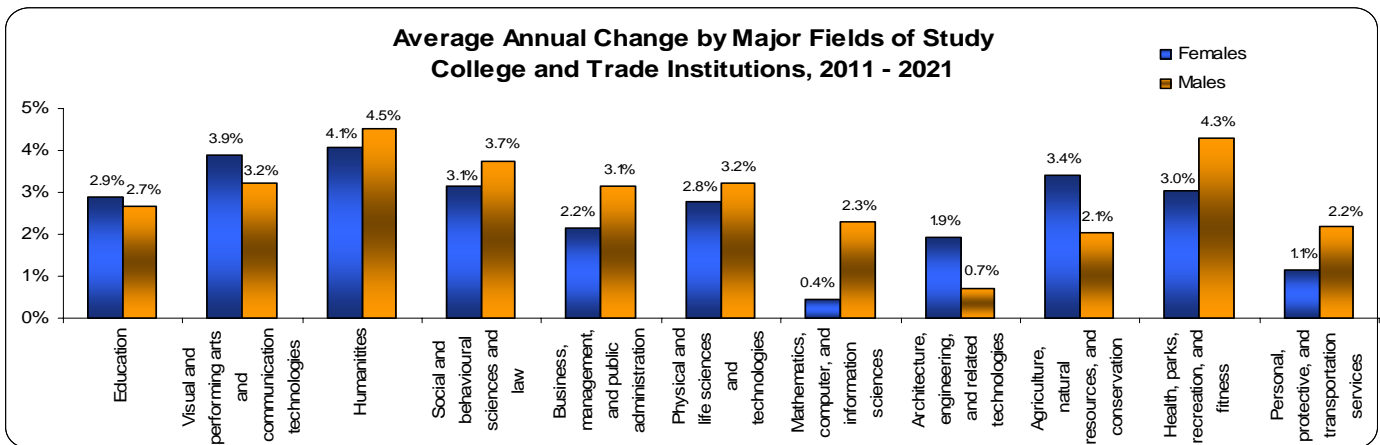
Chart 6



Data Source: Alberta's Occupational Supply Outlook Model, 2011-2021

Chart 7 shows that males are anticipated to have higher average annual growth rates than females in business, humanities, social science, physical and life science, mathematical and computer science, health, and personal service fields. Females are expected to have higher growth rates in education, visual and performing arts, architecture and engineering, and agriculture fields.

Chart 7



Data Source: Alberta's Occupational Supply Outlook Model, 2011-2021

## Summary and Conclusion

Over the coming decade, 2011 to 2021, the overall level of educational attainment in Alberta is expected to increase as more people enroll in post-secondary institutions. The enrolment rates for females in post-secondary education will exceed that of males, resulting in a higher proportion of females having obtained a post-secondary education by 2021.

Compared to females, a higher proportion of males will be qualified in applied science technologies and trades at the college and university levels. On the other hand, higher proportions of females will have qualifications in health.

According to Alberta's Occupational Demand and Supply Outlook, 2011-2021 occupations related to the trades and health major fields of study are expected to be in need of labour over the coming decade.

## Appendix A

### Major Fields of Study

- ✚ Education
- ✚ Visual and performing arts and communication technologies
- ✚ Humanities
- ✚ Social and behavioural sciences and law
- ✚ Business, management, and public administration
- ✚ Physical and life sciences and technologies
- ✚ Mathematics, computer, and information sciences
- ✚ Architecture, engineering, and related technologies
- ✚ Agriculture, natural resources, and conservation
- ✚ Health, parks, recreation, and fitness
- ✚ Personal, protective, and transportation services



## Appendix B

- Those with less than a high school education are determined to be those not already accounted for in other educational attainment categories.
- Less than high school educational attainment is adjusted to reflect the estimated portion of mature students in post-secondary institutions that do not have a high school diploma. High school educational attainment is also adjusted to subtract recent graduates from university and college and trades.
- The overall enrolment rate for mature students is used for all age groups within the mature student category.
- To project educational attainment by major field of study, the historic relative enrolment rate is maintained over the projected period.
- The share of new graduates by major field of study is constant over time.
- University transfer programs are included as university enrollment and university certificates are classified as college and technical.
- Educational attainment is based on the new graduate forecast plus net inflows from migration less deaths.

# Appendix C

## Educational Attainment

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011-2021
<b>Both Genders</b>												
<b>Less Than High School</b>	647,951	631,637	618,406	608,944	602,678	597,238	592,776	590,894	590,877	591,442	593,071	
% of Total	20.8%	20.0%	19.3%	18.7%	18.2%	17.7%	17.3%	17.0%	16.8%	16.5%	16.3%	
Growth Rate (%)	-2.57	-2.52	-2.09	-1.53	-1.03	-0.90	-0.75	-0.32	0.00	0.10	0.28	-1.03
<b>High School</b>	826,181	840,956	853,667	864,821	873,826	880,629	885,347	888,136	889,256	888,782	886,645	
% of Total	26.6%	26.6%	26.6%	26.5%	26.4%	26.2%	25.9%	25.6%	25.2%	24.8%	24.4%	
Growth Rate (%)	2.03	1.79	1.51	1.31	1.04	0.78	0.54	0.32	0.13	-0.05	-0.24	0.83
<b>College and Trade</b>	893,782	913,002	932,154	951,423	970,826	990,362	1,010,097	1,030,025	1,050,254	1,070,840	1,091,884	
% of Total	28.7%	28.9%	29.0%	29.2%	29.3%	29.4%	29.5%	29.7%	29.8%	29.9%	30.1%	
Growth Rate (%)	2.22	2.15	2.10	2.07	2.04	2.01	1.99	1.97	1.96	1.96	1.97	2.04
<b>University Degree</b>	742,776	774,100	805,323	836,156	867,220	898,506	930,160	962,144	994,703	1,027,856	1,061,735	
% of Total	23.9%	24.5%	25.1%	25.6%	26.2%	26.7%	27.2%	27.7%	28.2%	28.7%	29.2%	
Growth Rate (%)	4.29	4.22	4.03	3.83	3.72	3.61	3.52	3.44	3.38	3.33	3.30	3.70
<b>Females</b>												Average 2011-2021
<b>Less Than High School</b>	309,864	302,929	297,778	294,257	292,258	290,388	288,767	288,403	288,857	289,750	291,020	
% of Total	20.3%	19.5%	18.9%	18.3%	17.9%	17.5%	17.1%	16.8%	16.6%	16.4%	16.2%	
Growth Rate (%)	-2.16	-2.24	-1.70	-1.18	-0.68	-0.64	-0.56	-0.13	0.16	0.31	0.44	-0.76
<b>High School</b>	403,946	406,598	408,201	409,081	408,921	407,712	405,480	402,272	398,225	393,374	387,687	
% of Total	26.5%	26.2%	25.9%	25.5%	25.0%	24.6%	24.0%	23.5%	22.9%	22.2%	21.6%	
Growth Rate (%)	0.84	0.66	0.39	0.22	-0.04	-0.30	-0.55	-0.79	-1.01	-1.22	-1.45	-0.29
<b>College and Trade</b>	423,671	434,997	446,314	457,692	469,141	480,642	492,229	503,892	515,668	527,584	539,698	
% of Total	27.7%	28.0%	28.3%	28.5%	28.7%	29.0%	29.2%	29.4%	29.6%	29.8%	30.0%	
Growth Rate (%)	2.76	2.67	2.60	2.55	2.50	2.45	2.41	2.37	2.34	2.31	2.30	2.48
<b>University Degree</b>	389,703	407,846	426,102	444,284	462,690	481,317	500,249	519,458	539,075	559,117	579,654	
% of Total	25.5%	26.3%	27.0%	27.7%	28.3%	29.0%	29.7%	30.3%	30.9%	31.6%	32.2%	
Growth Rate (%)	4.76	4.66	4.48	4.27	4.14	4.03	3.93	3.84	3.78	3.72	3.67	4.11
<b>Males</b>												Average 2011-2021
<b>Less Than High School</b>	338,087	328,708	320,628	314,688	310,420	306,850	304,009	302,491	302,020	301,691	302,051	
% of Total	21.4%	20.5%	19.7%	19.0%	18.5%	18.0%	17.6%	17.2%	16.9%	16.7%	16.5%	
Growth Rate (%)	-2.94	-2.77	-2.46	-1.85	-1.36	-1.15	-0.93	-0.50	-0.16	-0.11	0.12	-1.28
<b>High School</b>	422,234	434,358	445,466	455,740	464,904	472,916	479,868	485,864	491,031	495,408	498,957	
% of Total	26.7%	27.0%	27.3%	27.5%	27.6%	27.7%	27.7%	27.7%	27.5%	27.4%	27.2%	
Growth Rate (%)	3.21	2.87	2.56	2.31	2.01	1.72	1.47	1.25	1.06	0.89	0.72	1.82
<b>College and Trade</b>	470,111	478,005	485,840	493,731	501,685	509,720	517,868	526,134	534,586	543,256	552,186	
% of Total	29.7%	29.7%	29.8%	29.8%	29.8%	29.9%	29.9%	29.9%	30.0%	30.0%	30.1%	
Growth Rate (%)	1.73	1.68	1.64	1.62	1.61	1.60	1.60	1.60	1.61	1.62	1.64	1.63
<b>University Degree</b>	353,073	366,254	379,221	391,872	404,530	417,189	429,911	442,687	455,628	468,739	482,081	
% of Total	22.3%	22.8%	23.2%	23.7%	24.1%	24.4%	24.8%	25.2%	25.6%	25.9%	26.3%	
Growth Rate (%)	3.79	3.73	3.54	3.34	3.23	3.13	3.05	2.97	2.92	2.88	2.85	3.22

## Appendix C

### Major Fields of Study: Universities

<b>Both Genders</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Average 2011-2021</b>
<b>Education</b>	93,492	96,907	100,251	103,496	106,766	110,071	113,426	116,827	120,303	123,853	127,490	
% of Total	12.6%	12.5%	12.4%	12.4%	12.3%	12.3%	12.2%	12.1%	12.1%	12.0%	12.0%	
Growth Rate (%)	3.70	3.65	3.45	3.24	3.16	3.10	3.05	3.00	2.97	2.95	2.94	3.20
<b>Visual and performing arts and communication technologies</b>	21,574	22,790	24,003	25,196	26,395	27,597	28,810	30,030	31,268	32,523	33,803	
% of Total	2.9%	2.9%	3.0%	3.0%	3.0%	3.1%	3.1%	3.1%	3.1%	3.2%	3.2%	
Growth Rate (%)	5.87	5.64	5.32	4.97	4.76	4.56	4.39	4.24	4.12	4.02	3.93	4.71
<b>Humanities</b>	57,357	60,768	64,018	67,100	70,180	73,255	76,340	79,430	82,547	85,694	88,883	
% of Total	7.7%	7.9%	7.9%	8.0%	8.1%	8.2%	8.2%	8.3%	8.3%	8.3%	8.4%	
Growth Rate (%)	6.48	5.95	5.35	4.81	4.59	4.38	4.21	4.05	3.92	3.81	3.72	4.66
<b>Social and behavioural sciences and law</b>	108,402	114,716	120,936	127,026	133,126	139,231	145,365	151,521	157,740	164,026	170,401	
% of Total	14.6%	14.8%	15.0%	15.2%	15.4%	15.5%	15.6%	15.7%	15.9%	16.0%	16.0%	
Growth Rate (%)	6.02	5.82	5.42	5.04	4.80	4.59	4.41	4.23	4.10	3.99	3.89	4.76
<b>Business, management, and public administration</b>	141,924	148,017	154,197	160,398	166,648	172,942	179,308	185,739	192,289	198,960	205,779	
% of Total	19.1%	19.1%	19.1%	19.2%	19.2%	19.2%	19.3%	19.3%	19.3%	19.4%	19.4%	
Growth Rate (%)	4.34	4.29	4.18	4.02	3.90	3.78	3.68	3.59	3.53	3.47	3.43	3.84
<b>Physical and life sciences and technologies</b>	56,240	58,641	61,066	63,474	65,903	68,356	70,843	73,362	75,929	78,549	81,234	
% of Total	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.7%	
Growth Rate (%)	4.27	4.27	4.14	3.94	3.83	3.72	3.64	3.56	3.50	3.45	3.42	3.79
<b>Mathematics, computer, and information sciences</b>	49,569	50,637	51,683	52,700	53,717	54,732	55,749	56,768	57,800	58,845	59,908	
% of Total	6.7%	6.5%	6.4%	6.3%	6.2%	6.1%	6.0%	5.9%	5.8%	5.7%	5.6%	
Growth Rate (%)	2.04	2.15	2.07	1.97	1.93	1.89	1.86	1.83	1.82	1.81	1.81	1.92
<b>Architecture, engineering, and related technologies</b>	94,423	96,801	99,173	101,530	103,896	106,272	108,676	111,102	113,582	116,116	118,721	
% of Total	12.7%	12.5%	12.3%	12.1%	12.0%	11.8%	11.7%	11.5%	11.4%	11.3%	11.2%	
Growth Rate (%)	2.50	2.52	2.45	2.38	2.33	2.29	2.26	2.23	2.23	2.23	2.24	2.33
<b>Agriculture, natural resources, and conservation</b>	16,419	16,950	17,460	17,943	18,432	18,925	19,425	19,932	20,450	20,979	21,521	
% of Total	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	
Growth Rate (%)	3.22	3.23	3.01	2.77	2.72	2.68	2.65	2.61	2.60	2.59	2.58	2.79
<b>Health, parks, recreation, and fitness</b>	99,824	104,111	108,569	113,129	117,793	122,560	127,450	132,457	137,610	142,910	148,376	
% of Total	13.4%	13.4%	13.5%	13.5%	13.6%	13.6%	13.7%	13.8%	13.8%	13.9%	14.0%	
Growth Rate (%)	4.38	4.29	4.28	4.20	4.12	4.05	3.99	3.93	3.89	3.85	3.82	4.07
<b>Personal, protective, and transportation services</b>	3,551	3,763	3,968	4,165	4,364	4,565	4,769	4,975	5,186	5,400	5,619	
% of Total	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Growth Rate (%)	6.08	5.96	5.46	4.96	4.78	4.60	4.46	4.33	4.23	4.13	4.06	4.82

## Appendix C

### Major Fields of Study: Universities (Cont.)

Females	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011-2021
<b>Education</b>	69,438	71,944	74,399	76,781	79,185	81,619	84,094	86,608	89,181	91,814	94,517	
% of Total	17.8%	17.6%	17.5%	17.3%	17.1%	17.0%	16.8%	16.7%	16.5%	16.4%	16.3%	
Growth Rate (%)	3.66	3.61	3.41	3.20	3.13	3.07	3.03	2.99	2.97	2.95	2.94	3.18
<b>Visual and performing arts and communication technologies</b>	13,746	14,527	15,313	16,094	16,881	17,675	18,480	19,294	20,122	20,965	21,828	
% of Total	3.5%	3.6%	3.6%	3.6%	3.6%	3.7%	3.7%	3.7%	3.7%	3.7%	3.8%	
Growth Rate (%)	5.90	5.68	5.41	5.10	4.89	4.70	4.55	4.40	4.29	4.19	4.11	4.84
<b>Humanities</b>	34,446	36,557	38,584	40,518	42,457	44,400	46,354	48,317	50,301	52,310	54,349	
% of Total	8.8%	9.0%	9.1%	9.1%	9.2%	9.2%	9.3%	9.3%	9.3%	9.4%	9.4%	
Growth Rate (%)	6.65	6.13	5.54	5.01	4.79	4.58	4.40	4.23	4.11	3.99	3.90	4.85
<b>Social and behavioural sciences and law</b>	63,548	67,444	71,305	75,105	78,925	82,764	86,635	90,534	94,485	98,491	102,566	
% of Total	16.3%	16.5%	16.7%	16.9%	17.1%	17.2%	17.3%	17.4%	17.5%	17.6%	17.7%	
Growth Rate (%)	6.35	6.13	5.72	5.33	5.09	4.86	4.68	4.50	4.36	4.24	4.14	5.04
<b>Business, management, and public administration</b>	71,578	74,685	77,878	81,124	84,412	87,738	91,118	94,547	98,053	101,638	105,315	
% of Total	18.4%	18.3%	18.3%	18.3%	18.2%	18.2%	18.2%	18.2%	18.2%	18.2%	18.2%	
Growth Rate (%)	4.35	4.34	4.28	4.17	4.05	3.94	3.85	3.76	3.71	3.66	3.62	3.98
<b>Physical and life sciences and technologies</b>	25,834	27,166	28,521	29,876	31,246	32,631	34,037	35,460	36,909	38,388	39,901	
% of Total	6.6%	6.7%	6.7%	6.7%	6.8%	6.8%	6.8%	6.8%	6.8%	6.9%	6.9%	
Growth Rate (%)	5.16	5.15	4.99	4.75	4.58	4.43	4.31	4.18	4.09	4.01	3.94	4.51
<b>Mathematics, computer, and information sciences</b>	14,355	14,630	14,901	15,166	15,432	15,699	15,969	16,241	16,519	16,802	17,093	
% of Total	3.7%	3.6%	3.5%	3.4%	3.3%	3.3%	3.2%	3.1%	3.1%	3.0%	2.9%	
Growth Rate (%)	1.77	1.92	1.85	1.78	1.76	1.73	1.72	1.70	1.71	1.72	1.73	1.76
<b>Architecture, engineering, and related technologies</b>	16,307	16,743	17,187	17,637	18,096	18,564	19,043	19,533	20,038	20,560	21,100	
% of Total	4.2%	4.1%	4.0%	4.0%	3.9%	3.9%	3.8%	3.8%	3.7%	3.7%	3.6%	
Growth Rate (%)	2.67	2.67	2.65	2.62	2.60	2.58	2.58	2.57	2.59	2.60	2.63	2.62
<b>Agriculture, natural resources, and conservation</b>	6,793	7,074	7,347	7,607	7,873	8,144	8,422	8,705	8,996	9,295	9,603	
% of Total	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	
Growth Rate (%)	4.16	4.15	3.86	3.54	3.49	3.44	3.41	3.37	3.34	3.32	3.31	3.58
<b>Health, parks, recreation, and fitness</b>	72,631	75,977	79,497	83,136	86,870	90,699	94,636	98,680	102,849	107,148	111,589	
% of Total	18.6%	18.6%	18.7%	18.7%	18.8%	18.8%	18.9%	19.0%	19.1%	19.2%	19.3%	
Growth Rate (%)	4.72	4.61	4.63	4.58	4.49	4.41	4.34	4.27	4.23	4.18	4.14	4.42
<b>Personal, protective, and transportation services</b>	1,027	1,099	1,171	1,240	1,312	1,385	1,461	1,540	1,621	1,705	1,792	
% of Total	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	
Growth Rate (%)	6.99	7.01	6.50	5.92	5.76	5.61	5.50	5.38	5.27	5.18	5.10	5.84

## Appendix C

### Major Fields of Study: Universities (Cont.)

<b>Males</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Average 2011-2021</b>
<b>Education</b>	24,054	24,963	25,853	26,715	27,581	28,452	29,332	30,219	31,122	32,039	32,973	
% of Total	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	
Growth Rate (%)	3.84	3.78	3.56	3.34	3.24	3.16	3.09	3.03	2.99	2.95	2.92	3.26
<b>Visual and performing arts and communication technologies</b>	7,828	8,263	8,690	9,103	9,514	9,922	10,330	10,737	11,146	11,558	11,975	
% of Total	2.2%	2.3%	2.3%	2.3%	2.4%	2.4%	2.4%	2.4%	2.4%	2.5%	2.5%	
Growth Rate (%)	5.80	5.56	5.16	4.75	4.51	4.29	4.11	3.94	3.81	3.70	3.61	4.48
<b>Humanities</b>	22,911	24,211	25,434	26,582	27,722	28,856	29,986	31,113	32,246	33,384	34,534	
% of Total	6.5%	6.6%	6.7%	6.8%	6.9%	6.9%	7.0%	7.0%	7.1%	7.1%	7.2%	
Growth Rate (%)	6.22	5.67	5.05	4.51	4.29	4.09	3.92	3.76	3.64	3.53	3.44	4.38
<b>Social and behavioural sciences and law</b>	44,854	47,272	49,631	51,921	54,201	56,467	58,730	60,987	63,255	65,535	67,835	
% of Total	12.7%	12.9%	13.1%	13.2%	13.4%	13.5%	13.7%	13.8%	13.9%	14.0%	14.1%	
Growth Rate (%)	5.56	5.39	4.99	4.61	4.39	4.18	4.01	3.84	3.72	3.60	3.51	4.35
<b>Business, management, and public administration</b>	70,346	73,332	76,318	79,274	82,237	85,204	88,190	91,192	94,236	97,322	100,465	
% of Total	19.9%	20.0%	20.1%	20.2%	20.3%	20.4%	20.5%	20.6%	20.7%	20.8%	20.8%	
Growth Rate (%)	4.33	4.24	4.07	3.87	3.74	3.61	3.50	3.40	3.34	3.27	3.23	3.69
<b>Physical and life sciences and technologies</b>	30,407	31,475	32,545	33,597	34,657	35,725	36,806	37,902	39,019	40,161	41,333	
% of Total	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	
Growth Rate (%)	3.52	3.51	3.40	3.23	3.15	3.08	3.03	2.98	2.95	2.93	2.92	3.15
<b>Mathematics, computer, and information sciences</b>	35,214	36,007	36,782	37,534	38,285	39,032	39,780	40,527	41,281	42,043	42,815	
% of Total	10.0%	9.8%	9.7%	9.6%	9.5%	9.4%	9.3%	9.2%	9.1%	9.0%	8.9%	
Growth Rate (%)	2.15	2.25	2.15	2.04	2.00	1.95	1.92	1.88	1.86	1.84	1.84	1.99
<b>Architecture, engineering, and related technologies</b>	78,116	80,059	81,986	83,893	85,800	87,709	89,633	91,570	93,544	95,557	97,620	
% of Total	22.1%	21.9%	21.6%	21.4%	21.2%	21.0%	20.8%	20.7%	20.5%	20.4%	20.2%	
Growth Rate (%)	2.47	2.49	2.41	2.33	2.27	2.22	2.19	2.16	2.16	2.15	2.16	2.27
<b>Agriculture, natural resources, and conservation</b>	9,626	9,876	10,113	10,336	10,558	10,781	11,004	11,227	11,454	11,684	11,918	
% of Total	2.7%	2.7%	2.7%	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.5%	2.5%	
Growth Rate (%)	2.56	2.59	2.40	2.20	2.16	2.10	2.07	2.03	2.02	2.01	2.00	2.20
<b>Health, parks, recreation, and fitness</b>	27,193	28,135	29,072	29,993	30,923	31,862	32,814	33,777	34,760	35,762	36,786	
% of Total	7.7%	7.7%	7.7%	7.7%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	7.6%	
Growth Rate (%)	3.50	3.46	3.33	3.17	3.10	3.04	2.99	2.94	2.91	2.88	2.86	3.11
<b>Personal, protective, and transportation services</b>	2,524	2,663	2,797	2,925	3,053	3,180	3,307	3,435	3,564	3,695	3,827	
% of Total	0.7%	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	
Growth Rate (%)	5.71	5.53	5.04	4.56	4.36	4.17	4.01	3.87	3.76	3.65	3.57	4.38

## Appendix C

### Major Fields of Study: College and Trade Institutions

Both Genders	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011-2021
<b>Education</b>	12,904	13,322	13,737	14,150	14,563	14,974	15,385	15,794	16,205	16,617	17,031	
% of Total	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.6%	1.6%	
Growth Rate (%)	3.34	3.24	3.12	3.01	2.92	2.82	2.74	2.66	2.60	2.54	2.49	2.86
<b>Visual and performing arts and communication technologies</b>	31,710	33,012	34,301	35,587	36,868	38,145	39,422	40,699	41,983	43,278	44,590	
% of Total	3.5%	3.6%	3.7%	3.7%	3.8%	3.9%	3.9%	4.0%	4.0%	4.0%	4.1%	
Growth Rate (%)	4.38	4.11	3.91	3.75	3.60	3.46	3.35	3.24	3.15	3.08	3.03	3.55
<b>Humanities</b>	16,484	17,347	18,194	19,031	19,858	20,676	21,486	22,288	23,085	23,879	24,674	
% of Total	1.8%	1.9%	2.0%	2.0%	2.0%	2.1%	2.1%	2.2%	2.2%	2.2%	2.3%	
Growth Rate (%)	5.61	5.24	4.88	4.60	4.35	4.12	3.92	3.73	3.58	3.44	3.33	4.25
<b>Social and behavioural sciences and law</b>	42,331	43,884	45,424	46,963	48,504	50,045	51,591	53,140	54,700	56,275	57,872	
% of Total	4.7%	4.8%	4.9%	4.9%	5.0%	5.1%	5.1%	5.2%	5.2%	5.3%	5.3%	
Growth Rate (%)	3.93	3.67	3.51	3.39	3.28	3.18	3.09	3.00	2.94	2.88	2.84	3.25
<b>Business, management, and public administration</b>	188,570	193,422	198,266	203,148	208,079	213,054	218,089	223,185	228,367	233,651	239,063	
% of Total	21.1%	21.2%	21.3%	21.4%	21.4%	21.5%	21.6%	21.7%	21.7%	21.8%	21.9%	
Growth Rate (%)	2.68	2.57	2.50	2.46	2.43	2.39	2.36	2.34	2.32	2.31	2.32	2.43
<b>Physical and life sciences and technologies</b>	9,320	9,658	9,987	10,310	10,628	10,940	11,247	11,549	11,848	12,143	12,437	
% of Total	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	
Growth Rate (%)	3.85	3.62	3.41	3.24	3.08	2.94	2.81	2.69	2.58	2.49	2.42	3.01
<b>Mathematics, computer, and information sciences</b>	49,592	50,444	51,282	52,110	52,927	53,731	54,524	55,306	56,081	56,850	57,615	
% of Total	5.5%	5.5%	5.5%	5.5%	5.5%	5.4%	5.4%	5.4%	5.3%	5.3%	5.3%	
Growth Rate (%)	1.74	1.72	1.66	1.61	1.57	1.52	1.48	1.43	1.40	1.37	1.35	1.53
<b>Architecture, engineering, and related technologies</b>	299,316	301,423	303,566	305,787	308,073	310,439	312,905	315,473	318,173	321,016	324,032	
% of Total	33.5%	33.0%	32.6%	32.1%	31.7%	31.3%	31.0%	30.6%	30.3%	30.0%	29.7%	
Growth Rate (%)	0.68	0.70	0.71	0.73	0.75	0.77	0.79	0.82	0.86	0.89	0.94	0.79
<b>Agriculture, natural resources, and conservation</b>	25,924	26,613	27,297	27,987	28,685	29,391	30,108	30,836	31,579	32,341	33,125	
% of Total	2.9%	2.9%	2.9%	2.9%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Rate (%)	2.82	2.66	2.57	2.53	2.49	2.46	2.44	2.42	2.41	2.41	2.43	2.51
<b>Health, parks, recreation, and fitness</b>	135,088	139,828	144,576	149,371	154,217	159,110	164,059	169,059	174,123	179,259	184,483	
% of Total	15.1%	15.3%	15.5%	15.7%	15.9%	16.1%	16.2%	16.4%	16.6%	16.7%	16.9%	
Growth Rate (%)	3.64	3.51	3.40	3.32	3.24	3.17	3.11	3.05	3.00	2.95	2.91	3.21
<b>Personal, protective, and transportation services</b>	82,543	84,051	85,524	86,980	88,425	89,856	91,280	92,694	94,110	95,531	96,962	
% of Total	9.2%	9.2%	9.2%	9.1%	9.1%	9.1%	9.0%	9.0%	9.0%	8.9%	8.9%	
Growth Rate (%)	1.95	1.83	1.75	1.70	1.66	1.62	1.58	1.55	1.53	1.51	1.50	1.65

## Appendix C

### Major Fields of Study: College and Trade Institutions (Cont.)

Females	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011-2021
<b>Education</b>	11,200	11,565	11,929	12,292	12,654	13,014	13,375	13,735	14,097	14,459	14,824	
% of Total	2.6%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	
Growth Rate (%)	3.36	3.26	3.14	3.04	2.95	2.85	2.77	2.69	2.63	2.57	2.52	2.89
<b>Visual and performing arts and communication technologies</b>	15,501	16,202	16,900	17,596	18,293	18,988	19,685	20,382	21,082	21,788	22,503	
% of Total	3.7%	3.7%	3.8%	3.8%	3.9%	4.0%	4.0%	4.0%	4.1%	4.1%	4.2%	
Growth Rate (%)	4.85	4.53	4.30	4.12	3.96	3.80	3.67	3.54	3.44	3.35	3.28	3.89
<b>Humanities</b>	10,220	10,736	11,244	11,745	12,238	12,724	13,203	13,676	14,143	14,605	15,064	
% of Total	2.4%	2.5%	2.5%	2.6%	2.6%	2.6%	2.7%	2.7%	2.7%	2.8%	2.8%	
Growth Rate (%)	5.40	5.05	4.73	4.45	4.20	3.97	3.77	3.58	3.41	3.27	3.15	4.09
<b>Social and behavioural sciences and law</b>	35,354	36,620	37,875	39,127	40,378	41,625	42,873	44,120	45,370	46,627	47,897	
% of Total	8.3%	8.4%	8.5%	8.5%	8.6%	8.7%	8.7%	8.8%	8.8%	8.8%	8.9%	
Growth Rate (%)	3.81	3.58	3.43	3.31	3.20	3.09	3.00	2.91	2.83	2.77	2.72	3.15
<b>Business, management, and public administration</b>	139,069	142,232	145,399	148,591	151,815	155,065	158,353	161,677	165,050	168,482	171,990	
% of Total	32.8%	32.7%	32.6%	32.5%	32.4%	32.3%	32.2%	32.1%	32.0%	31.9%	31.9%	
Growth Rate (%)	2.35	2.27	2.23	2.20	2.17	2.14	2.12	2.10	2.09	2.08	2.08	2.17
<b>Physical and life sciences and technologies</b>	4,259	4,398	4,535	4,669	4,801	4,931	5,059	5,185	5,310	5,434	5,556	
% of Total	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Growth Rate (%)	3.45	3.26	3.10	2.96	2.83	2.71	2.60	2.50	2.41	2.33	2.26	2.76
<b>Mathematics, computer, and information sciences</b>	21,244	21,345	21,445	21,545	21,644	21,741	21,837	21,931	22,026	22,121	22,217	
% of Total	5.0%	4.9%	4.8%	4.7%	4.6%	4.5%	4.4%	4.4%	4.3%	4.2%	4.1%	
Growth Rate (%)	0.46	0.47	0.47	0.46	0.46	0.45	0.44	0.43	0.43	0.43	0.43	0.45
<b>Architecture, engineering, and related technologies</b>	18,220	18,544	18,883	19,240	19,610	19,990	20,383	20,790	21,210	21,642	22,096	
% of Total	4.3%	4.3%	4.2%	4.2%	4.2%	4.2%	4.1%	4.1%	4.1%	4.1%	4.1%	
Growth Rate (%)	1.69	1.78	1.83	1.89	1.92	1.94	1.96	2.00	2.02	2.04	2.10	1.92
<b>Agriculture, natural resources, and conservation</b>	8,513	8,834	9,155	9,477	9,802	10,130	10,461	10,796	11,135	11,480	11,832	
% of Total	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.2%	2.2%	2.2%	
Growth Rate (%)	4.06	3.77	3.63	3.52	3.43	3.35	3.27	3.20	3.14	3.09	3.07	3.41
<b>Health, parks, recreation, and fitness</b>	117,901	121,811	125,732	129,689	133,686	137,718	141,795	145,909	150,072	154,291	158,579	
% of Total	27.8%	28.0%	28.2%	28.3%	28.5%	28.7%	28.8%	29.0%	29.1%	29.2%	29.4%	
Growth Rate (%)	3.41	3.32	3.22	3.15	3.08	3.02	2.96	2.90	2.85	2.81	2.78	3.05
<b>Personal, protective, and transportation services</b>	42,191	42,708	43,217	43,721	44,222	44,715	45,206	45,690	46,173	46,655	47,140	
% of Total	10.0%	9.8%	9.7%	9.6%	9.4%	9.3%	9.2%	9.1%	9.0%	8.8%	8.7%	
Growth Rate (%)	1.28	1.23	1.19	1.17	1.14	1.12	1.10	1.07	1.06	1.04	1.04	1.13

## Appendix C

### Major Fields of Study: College and Trade Institutions (Cont.)

<b>Males</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Average 2011-2021</b>
<b>Education</b>	1,704	1,756	1,808	1,859	1,910	1,960	2,010	2,059	2,108	2,158	2,207	
% of Total	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	
Growth Rate (%)	3.16	3.06	2.93	2.83	2.73	2.63	2.54	2.46	2.40	2.34	2.29	2.67
<b>Visual and performing arts and communication technologies</b>	16,209	16,810	17,402	17,990	18,575	19,157	19,737	20,318	20,901	21,490	22,087	
% of Total	3.4%	3.5%	3.6%	3.6%	3.7%	3.8%	3.8%	3.9%	3.9%	4.0%	4.0%	
Growth Rate (%)	3.94	3.70	3.52	3.38	3.25	3.13	3.03	2.94	2.87	2.82	2.78	3.22
<b>Humanities</b>	6,264	6,611	6,950	7,286	7,620	7,952	8,283	8,612	8,942	9,274	9,610	
% of Total	1.3%	1.4%	1.4%	1.5%	1.5%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	
Growth Rate (%)	5.94	5.54	5.12	4.84	4.58	4.36	4.16	3.98	3.83	3.72	3.62	4.52
<b>Social and behavioural sciences and law</b>	6,977	7,264	7,548	7,835	8,126	8,419	8,718	9,020	9,330	9,648	9,975	
% of Total	1.5%	1.5%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	1.7%	1.8%	1.8%	
Growth Rate (%)	4.56	4.11	3.92	3.80	3.71	3.61	3.54	3.47	3.43	3.40	3.40	3.72
<b>Business, management, and public administration</b>	49,501	51,190	52,867	54,557	56,264	57,989	59,736	61,508	63,317	65,169	67,073	
% of Total	10.5%	10.7%	10.9%	11.0%	11.2%	11.4%	11.5%	11.7%	11.8%	12.0%	12.1%	
Growth Rate (%)	3.62	3.41	3.28	3.20	3.13	3.07	3.01	2.97	2.94	2.93	2.92	3.13
<b>Physical and life sciences and technologies</b>	5,061	5,259	5,452	5,641	5,827	6,009	6,188	6,364	6,538	6,710	6,880	
% of Total	1.1%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	
Growth Rate (%)	4.19	3.92	3.67	3.47	3.29	3.12	2.98	2.84	2.73	2.63	2.54	3.22
<b>Mathematics, computer, and information sciences</b>	28,348	29,098	29,837	30,565	31,284	31,991	32,688	33,375	34,055	34,729	35,398	
% of Total	6.0%	6.1%	6.1%	6.2%	6.2%	6.3%	6.3%	6.3%	6.4%	6.4%	6.4%	
Growth Rate (%)	2.72	2.65	2.54	2.44	2.35	2.26	2.18	2.10	2.04	1.98	1.93	2.29
<b>Architecture, engineering, and related technologies</b>	281,097	282,879	284,683	286,547	288,463	290,449	292,523	294,683	296,963	299,374	301,936	
% of Total	59.8%	59.2%	58.6%	58.0%	57.5%	57.0%	56.5%	56.0%	55.6%	55.1%	54.7%	
Growth Rate (%)	0.61	0.63	0.64	0.65	0.67	0.69	0.71	0.74	0.77	0.81	0.86	0.71
<b>Agriculture, natural resources, and conservation</b>	17,411	17,778	18,142	18,510	18,883	19,261	19,647	20,040	20,444	20,861	21,293	
% of Total	3.7%	3.7%	3.7%	3.7%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.9%	
Growth Rate (%)	2.23	2.11	2.05	2.03	2.02	2.00	2.00	2.00	2.02	2.04	2.07	2.05
<b>Health, parks, recreation, and fitness</b>	17,187	18,018	18,845	19,682	20,531	21,392	22,265	23,150	24,051	24,968	25,905	
% of Total	3.7%	3.8%	3.9%	4.0%	4.1%	4.2%	4.3%	4.4%	4.5%	4.6%	4.7%	
Growth Rate (%)	5.20	4.83	4.59	4.44	4.31	4.19	4.08	3.98	3.89	3.82	3.75	4.28
<b>Personal, protective, and transportation services</b>	40,352	41,343	42,306	43,258	44,203	45,141	46,074	47,004	47,937	48,875	49,822	
% of Total	8.6%	8.6%	8.7%	8.8%	8.8%	8.9%	8.9%	8.9%	9.0%	9.0%	9.0%	
Growth Rate (%)	2.66	2.45	2.33	2.25	2.18	2.12	2.07	2.02	1.98	1.96	1.94	2.18