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# SCIENCE AND ENGINEERING

**VOLUME II:** 

COLLEGES



Industry, Science and Technology Canada Industrie, Sciences et Technologie Canada



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# SCIENCE AND ENGINEERING

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**VOLUME II:** 

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**COLLEGES** 

# Table of Contents

Introduction	1
Overview	3
Women in Engineering and Applied Sciences	7
Women in Natural Sciences and Primary Industries	11
Women in Health Sciences	15
Women in Social Sciences and Services	19
Technical Notes and Definitions	23
Representative Disciplines within Fields of Study	25
Annex Tables	2.7

# SYMBOLS

The following standard symbols are used in this publication:

- nil or zero.
- -- amount too small to be expressed.

NOTE: Some table cells may not sum to the totals shown because of rounding.

## CHART ABBREVIATIONS

Eng/Appl Scs — Engineering and Applied Sciences

Nat Scs/Prm Ind — Natural Sciences and Primary Industries

Health — Health Sciences

Social Sciences - Social Sciences and Services

Bus/Commerce — Business and Commerce

Humanities — Humanities

Arts — Arts

Other — Other

This volume is the second in a series of three on women in science and engineering in Canada. It examines the situation of women students, teachers and administrators at public colleges and related institutions. Volume I focused on women students and faculty in universities, and Volume III will explore how women with scientific and engineering backgrounds are participating in the labour force.

Colleges and related institutions offer postsecondary training and career programs, including university transfer programs. These institutions include colleges of applied arts and technology and the Quebec *collèges d'enseignement général et professionnel* (cégeps), as well as establishments providing training in specialized areas, such as arts, forestry, agriculture, nursing and health technology.

Women's presence in science and engineering career programs in Canada's 204 public colleges is the focus of this volume. Career programs vary widely among institutions and between provinces, as do their entrance requirements and duration. The Statistics Canada data from which this publication was compiled are based on the following definition of a career program:

- high school graduation is normally a prerequisite;
- the program lasts one year or more;
- it leads to a technician's certificate or a technologist's diploma; and
- it is **not** classified as trade or vocational.

Technicians have one to two years of postsecondary education and apply existing scientific and technical knowledge on the job. Technologists have two or more years of postsecondary education and translate technical designs into working products.

Although women are a majority of career program students and graduates, they accounted for only about 19% of enrolments in engineering, applied sciences, natural sciences and primary industries technician and technologist programs at Canadian colleges and related institutions in 1989-90, up from 15% a decade earlier. An almost 25% drop in overall enrolments in these programs during the 1980s suggests that industry may not be able to find the skills it needs to be competitive, and underlines the importance of making such careers attractive to women.

Women's study and career choices are influenced long before they leave high school. Early sex role stereotyping and the masculine image of science and engineering are largely responsible for the low representation of women in these fields. Lack of information about technician and technologist programs and career opportunities compounds the problem, as does the scarcity of women instructors in science and engineering. Colleges, governments and industry are working to encourage women and men students to enter engineering and natural sciences technician and technologist programs. Parents, teachers and guidance counsellors must do their part by encouraging girls to keep up their science and mathematics. Sustained effort will be needed to ensure that women achieve significant representation in these fields.

Just as in the universities, women are now the majority of college career program students in Canada, but still a minority of teaching staff.

In 1989-90, women accounted for 55% of 214 140 college full-time enrolments and 53% of 626 795 university enrolments. The number of women enrolled in colleges full-time increased by 40% over the period 1977-78 to 1989-90, from 84 387 to 118 328. Male full-time enrolment increased by 29% over the same period, with most of this growth occurring before 1984. They peaked at 108 948 in 1984 and declined by 12% to 95 812 in 1989-90. In the fields of engineering, applied sciences, natural sciences and primary industries, total enrolments peaked at 75 901 in 1983-84 and declined by 25% to 57 290 in 1989-90.

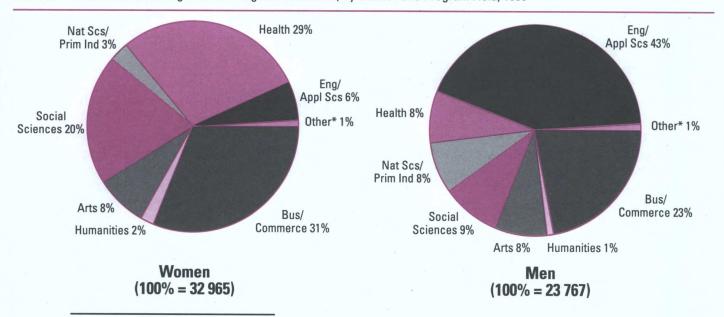
In 1989, women made up 58% of the 56 732 graduates in college career programs, compared

with 55% of the 105 239 recipients of undergraduate degrees. From 1977 to 1989, the number of women earning career program diplomas increased by 37% to a total of 32 965. The number of male graduates grew even faster over the period, by 52%, to a total of 23 767.

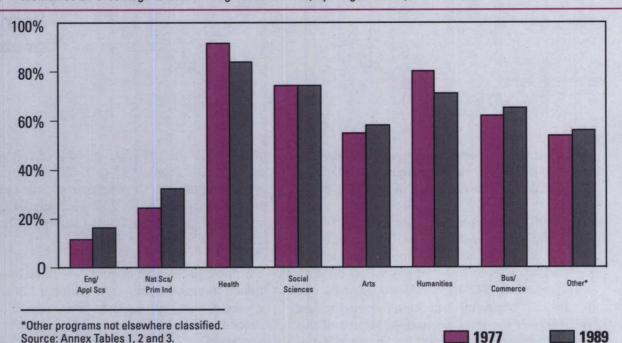
Despite their overall majority, women have continued to enrol mainly in traditional female programs. Chart 1 shows that 49% of female graduates in 1989 were awarded diplomas in the health and social sciences, compared with 17% of the men. Half of the men, but only 9% of the women, completed their studies in the engineering and natural sciences/primary industries fields.

In male-dominated fields, women tended to be concentrated in the less technology-intensive programs. For example, in engineering and applied sciences, 52% of female graduates earned their

Chart 1. Distribution of College Career Program Graduates, by Gender and Program Field, 1989



<sup>\*</sup>Other programs not elsewhere classified. Source: Annex Tables 1, 2 and 3.



Diplomas in mathematics and computer science, compared with 21% of male graduates. Men were more likely to complete their studies in the engineering technologies (43%) and the electrical/electronic technologies (30%).

In the natural sciences and primary industries field, 67% of female graduates earned natural sciences diplomas. Male graduates in the field were relatively evenly distributed among the natural sciences (31%), primary industries (34%) and environmental and conservation technologies (28%) (see Annex Tables 1, 2 and 3).

Nonetheless, women have made significant inroads into these fields. Chart 2 shows that between 1977 and 1989, the proportion of women graduating in engineering rose from 11% to 16%, and in the natural sciences field from 24% to 32%.

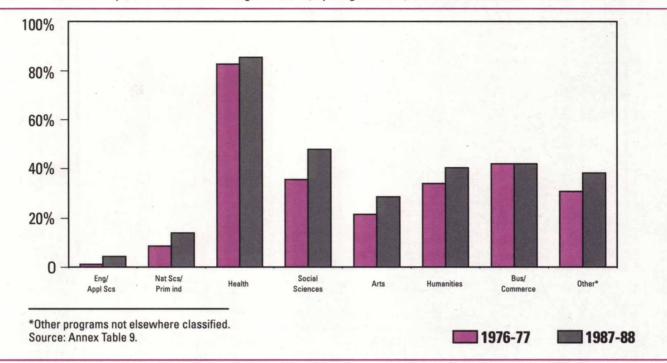
Health (chiefly nursing) was still the most popular field for women in 1989-90, even though female enrolments had declined from 32% of the total in 1977-78 to 24%. Engineering and applied sciences was the most popular field for men, accounting for 42% of the total male enrolment. Only 7% of women chose this field of study in 1989-90.

College career program students were older in 1989-90 than in 1983-84, full-time female students being slightly older than their male counterparts. In 1983-84, 81% of the female and 83% of the male students were between the ages of 18 and 24. Seven academic years later, the percentage of female and male students in this age bracket had dropped to 71% and 76%, respectively, while the 25-29 and 30-34 age groups grew. Age breakdowns are not available by field of study.

As in the universities, women were more likely than men to study part-time. In 1989-90, 72 700 women were registered in career programs part-time, representing 62% of these enrolments. Part-time students are not classified to a field of study, since many do not elect a specific program.

Even though women have been the majority of career program students for a decade or more, they held only a third of the teaching and administrative leadership positions in college career programs in 1987-88. That year, 34% of 14 864 full-time teachers and 31% of 2 296 full-time academic administrators were women, an increase from 30% and 18%, respectively, in 1976-77.

Chart 3. Women as a Proportion of Full-time College Teachers, by Program Field, 1976-77 and 1987-88

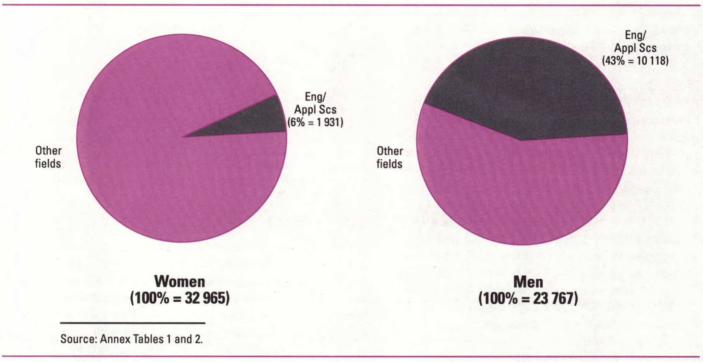


A full third of the 5 021 female instructors were in the health sciences, compared with 3% of the 9 843 male teaching staff. Conversely, 39% (3 864) of the men were engineering and applied sciences teachers compared with only 3% (156) of the women.

Not surprisingly, women in 1987-88 accounted for only 4% of the 4 020 teaching staff in engineering and 14% of 973 in the natural sciences, but for 86% of the 1 903 health and 48% of the 6 739 social sciences and services teachers.

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Chart 4. Engineering and Applied Sciences Career Program Graduates, by Gender, 1989



# **Trends in Diploma Attainment**

The engineering and applied sciences field attracts relatively few female students. In 1989, only 6% (1 931) of the 32 965 female college career program graduates completed their studies in this field, a marginal increase from 4% of the 24 052 twelve years earlier. In contrast, 43% of the 23 767 male graduates earned their diplomas in engineering in 1989, about the same proportion as in 1977.

Between 1977 and 1989, the number of female graduates in engineering and the applied sciences increased by 121%, to 1 931. Most of this growth occurred up to 1984, when female graduation peaked at 3 210, thereafter decreasing by 40%. This trend for women was mainly due to the dramatic 456% increase in the number of female mathematics and computer science graduates over the early years of the period under review, followed by a 55% decrease between 1984 and 1989.

The number of male graduates in this field also increased over the period, by 50%, to 10 116 in 1989. The sharp increase (383%) in the number of male mathematics and computer science graduates at the beginning of the period was followed by a 23% decrease between 1985 and 1989. The number of male graduates in the electrical/electronic technologies and the engineering technologies also decreased substantially over the latter years, by 29% (3 817 to 3 015) and 26% (5 817 to 4 357), respectively.

Within the engineering and applied sciences field, women were less likely than men to have graduated with a diploma in engineering. In 1989, the majority (52%) of female engineering and applied sciences diploma earners completed their studies in mathematics and computer science, compared with 21% of the male graduates. Men were more

likely to secure diplomas in engineering technologies (43%) and electrical/electronic technologies (30%).

By 1989, only 16% of the diploma earners in this field were women, up from 11% in 1977. Table 2 shows that over the period, technology programs graduated proportionately more women, while the mathematics and computer science programs awarded proportionately fewer diplomas to women. Despite the fact that women were earning more diplomas in the traditionally male-dominated disciplines, it is clear that women were still underrepresented in technology programs.

### Trends in Enrolment

Enrolment trends in the engineering and applied sciences field mirrored those of the graduates. By 1989-90, women accounted for only 16% of the 48 578 student enrolment in engineering and applied sciences, up from 13% of 38 691 in 1977-78. Even in 1983-84, when the number of women in this field peaked at 64 864, only 18% of students were women. Between 1977 and 1983, the number of women enrolled in this field increased from 4 941 to 11 793, a 139% increase. Thereafter, their number dropped by 33% to 7 886. Nonetheless, women's enrolment in the field increased by 60% over the entire period from 1977-78 to 1989-90.

Chart 5 shows that male enrolment in this field followed the same pattern, increasing by 58% at the beginning of the period, from 33 750 in 1977-78 to 53 289 in 1984-85, then dropping by 24% to 40 692 in 1989-90.

Mathematics and computer science was the most popular discipline for women. In 1989-90, 45% of the 7 886 female engineering and applied sciences students were enrolled in this subfield. The second and third most popular disciplines for women were the engineering technologies (chiefly architectural and construction) and the chemical technologies, which attracted 32% and 13%, respectively, of the female students in this field. Women accounted for 42% of the 2 512 chemical technologies and for 30% of the 8 426 mathematics and computer science students, but for only 12% of the 20 560 engineering technologies students in that academic year.

Table 1. Percentage Distribution of Career Program Graduates in Engineering and Sciences, by Program Field and Gender, 1977, 1984 and 1989

	.19	77	19	84	1989	
Program field	Female	Male	Female	Male	Female	Male
			(per	cent)		
Chemical Technologies Electrical/Electronic	25	5	9	3	15	4
Technologies Mathematics and Computer	4	31	4	30	8 .	. 30
Science	- 46	8	69	19	52	21
Transportation Technologies	1	3	1	2	1	2
Engineering Technologies	25	54	18	45	24	43
Ğeneral	12	23	8	17	8	13
Mechanical		13	1	13	. 3	14
Architectural and						
Construction	10	13	7	. 10	11	11
Aeronautical	_		_			
Industrial .	1	5	1	5	3	• 5
Total	100	100	100	100	100	100
Total number	873	6.759	3 210	12 815	1 931	10 116
Source: Annex Tables 1 and 2.	. •					

# College Instructors

Of all program fields, engineering and applied sciences is the one in which women are the least well represented as teachers. In 1987-88, 39% of male college teachers but only 3% of female teachers taught in this field. Four percent of the career program teachers in this field were women, an increase from 1% in 1976-77. The greatest increase in women's representation was in mathematics and computer science, rising from 4% of total staff in 1976-77 to 13% in 1987-88.

Table 2. Women as a Percentage of Engineering and Applied Sciences Career Program Graduates, by Program Field, 1977, 1984 and 1989

Program field	19	977	1984		1989	
	(%)	(no.)	(%)	(no.)	(%)	(no.)
Chemical Technologies	41 -	216	39	278	40	286
Electrical/Electronic Technologies	2	33	3	118	5	158
Mathematics and Computer Science	41	400	47	2 222	33	1 005
Transportation Technologies	4	9	9	29	8	18
Engineering Technologies	6	215	9	563	. 10	464
General	6	108	1:1	261	10	152
Mechanical		4	2	35	4	54
Architectural and Construction	9	90	16	236	16	207
Aeronautical		-	_	_	2	1
Industrial	4	13	4	31	9	50
Total	11	873	20	3 210	16	1 931

Source: Annex Tables 1 and 3.

Chart 5. Full-time Enrolment in College Career Programs in Engineering and Applied Sciences, by Gender, 1977-78 to 1989-90

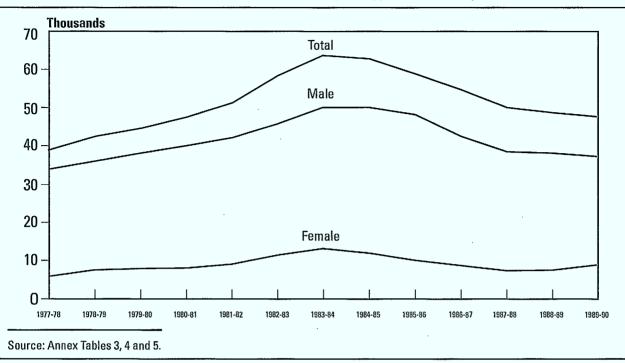


Table 3. Full-time College Teachers in Engineering and Applied Sciences, by Teaching Field and Gender, 1976-77 and 1987-88

	Tot	al teach staff	ing	A adm	-	
Teaching field	Female	Male	Total	Female	Male	Total
			(num	ber)		11.000
1976-77						
Auto Aircraft and Heavy Duty Mechanics Construction Technologies Electronics/Electrical	1	549 264	550 264	<del>-</del>	47 37	47 37
Technologies Engineering Technologies Mathematics and Computer	4 12	574 1 024	578 1 036	2	51 77	51 79
Science Total	8 · 25	219 <b>2 630</b>	227 <b>2 655</b>	1 3	18 <b>230</b>	19 <b>233</b>
1987-88						
Auto Aircraft and Heavy Duty Mechanics Construction Technologies	17 2	819 359	836 361	_ 1	63 41	63 42
Electronics/Electrical Technologies Engineering Technologies	24 57	818 1 506	842 1 563	<del>-</del>	84 100	84 104
Mathematics and Computer Science Total	56 1 <b>56</b>	362 <b>3 864</b>	418 4 020	4 9	30 <b>318</b>	34 <b>327</b>

Source: Statistics Canada, Education, Culture and Tourism Division.

The average age and experience of female teachers declined in the period under review. In 1976-77, the median ages of male and female teaching staff were 42 and 41 years of age, respectively. By 1987-88, the median age of males had increased to 45 while that of women had decreased to 37 years. The average years of experience of teaching staff increased by 7.5 years to 11.5 years for men between 1976-77 and 1987-88, and decreased slightly for women, from 7.1 years to 6.8 years over this same period (see Annex Tables 10 and 11).

Women academic administrators are also overwhelmingly outnumbered by men in engineering and applied sciences. Women academic administrators in this field accounted for 1% of the total in 1976-77, and for only 3% in 1987-88.

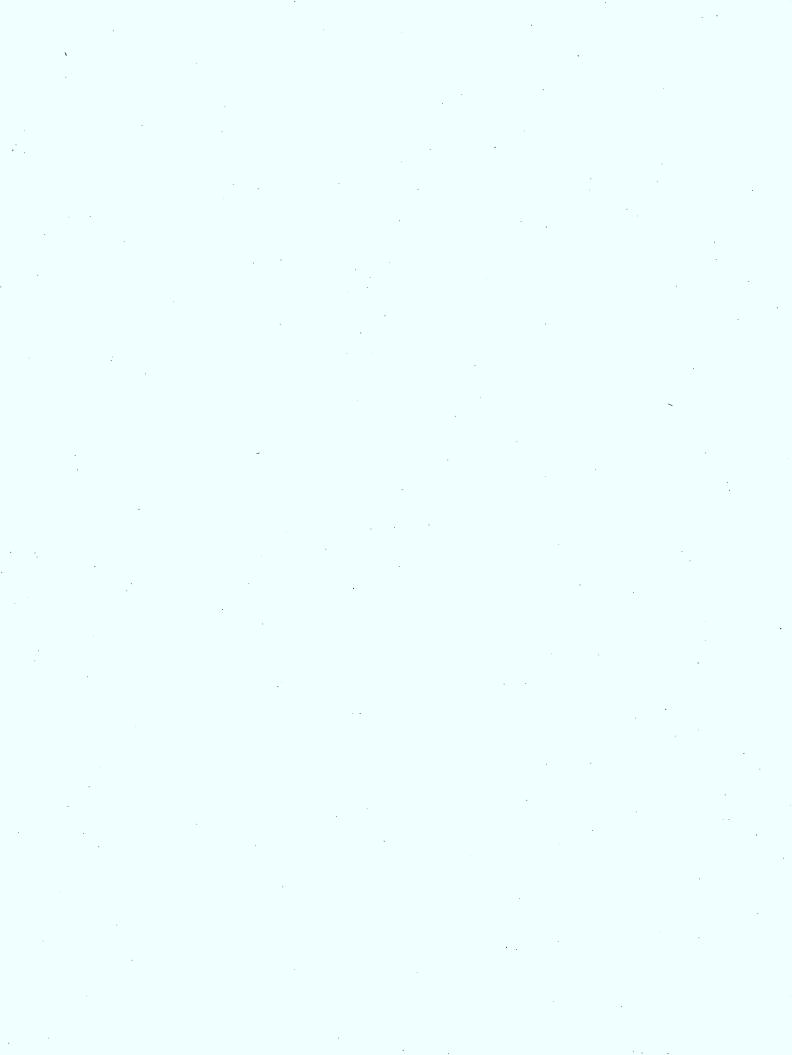
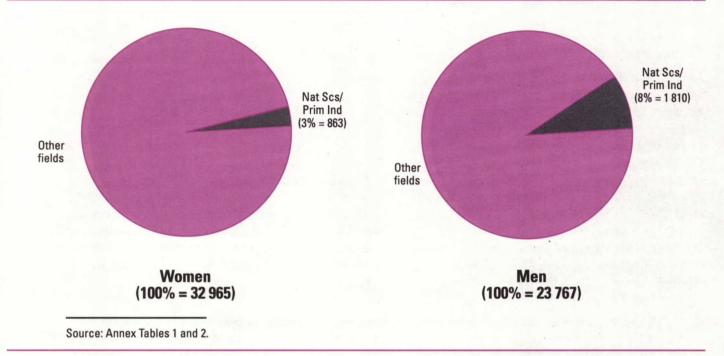


Chart 6. Natural Sciences and Primary Industries Career Program Graduates, by Gender, 1989



# **Trends in Diploma Attainment**

Natural sciences and primary industries was the least popular science field among women. In 1989, only 3% (863) of the 32 965 female career program graduates completed their studies in this field, a marginal increase from 2% (557) in 1977. However, this field was also attracting fewer men. In 1989, 8% (1 810) of the 23 767 male graduates earned their diplomas in natural sciences and primary industries, down from 11% in 1977.

As with engineering and applied sciences, most of the growth in the natural sciences and primary industries field occurred prior to 1984, when an all-time high of 1 073 women graduated. In 1989, women were awarded 863 diplomas, an overall increase of 55% since 1977 but 20% fewer than in 1984.

Male graduation in this field grew at a much slower pace over the thirteen-year period. In 1989, 1810 men were awarded diplomas, an increase of only 5% since 1977. As with women, the number of male diploma recipients peaked in 1984 at 2 467, thereafter declining by 27% to 1810 in 1989.

Table 4 shows that in 1989, as in 1977, women were concentrated in the natural sciences field, which includes agriculture, biology, plant and animal sciences programs. In 1977, almost half of the men secured a diploma in the primary industries technologies. However, by 1989, they were more evenly distributed among the primary industries, natural sciences and environmental and conservation technologies.

Over the years, growth in the number of diplomas awarded in this field has been greater for women than for men. As shown in Table 5, women comprised close to a third of the total graduates in this field by 1989, compared with a quarter in 1977. Although the field remained male-dominated overall, by 1989 women were earning 50% of the diplomas in the natural sciences program. Women were also better represented in the resource processing technologies (chiefly food processing), where they constituted 36% of the graduates by 1989.

#### Trends in Enrolment

Enrolments of women in this field have grown more slowly than the number of female graduates. Between 1977-78 and 1989-90, female enrolment increased by 36%, from 1 997 to 2 719. Chart 7 shows that throughout the 1980s, the number of female students in this field has been stable, while men's enrolment rose by 33% between 1977 and 1982-83, to 7 940, then fell back to the 1977 level (5 993).

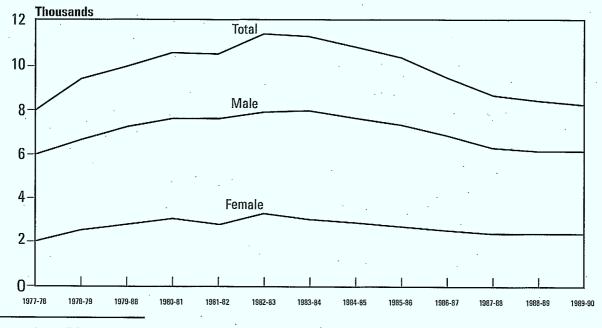
By 1989, women accounted for 31% of the students in this field, up from 25% in 1977. Female students enrolments in the natural sciences rose

Table 4. Percentage Distribution of Career Program Graduates in Natural Sciences and Primary Industries, by Program Field and Gender, 1977, 1984 and 1989

19	1989
e Female	le Male
2 67 7 11	31 34
5 8	1
6 14 0 100	
7 863	1 810

from 40% to 50% over the period, and from 17% to 24% in the resource processing technologies, but dropped from 26% to 20% in the environmental technologies. The actual number of women in the technology programs was small, as 66% of the female students in the field were enrolled in the natural sciences (see Annex Table 4).

Chart 7. Full-time Enrolment in College Career Programs in Natural Sciences and Primary Industries, by Gender, 1977-78 to 1989-90



12

Source: Annex Tables 3, 4 and 5.

Table 5. Women as a Percentage of Natural Sciences and Primary Industries Career Program Graduates, by Program Field, 1977, 1984 and 1989

19	977	1	984	19	989
(%)	(no.)	(%)	(no.) -	(%)	(no.)
42	367	46	656	50	577
9	75	15	198	14	99
30	29	31	58	. 36	69
18	86	29	161	19	118
24	557	30	1 073	32	863
	(%) 42 9 30	42 367 9 75 30 29 18 86	(%) (no.) (%) 42 367 46 9 75 15 30 29 31 18 86 29	(%) (no.) (%) (no.) 42 367 46 656 9 75 15 198 30 29 31 58 18 86 29 161	(%)     (no.)     (%)     (no.)     (%)       42     367     46     656     50       9     75     15     198     14       30     29     31     58     36       18     86     29     161     19

Table 6. Full-time College Teachers in Natural Sciences and Primary Industries, by Teaching Field and Gender, 1976-77 and 1987-88

	Tota	l teach staff	ing	A adm		
Teaching field	Female	Male	Total	Female	Male	Total
			(nun	nber)		
1976-77 Agriculture and other Primary Industries Natural Sciences Processing and Manufacturing Technologies Total	18 40 12 <b>70</b>	265 418 89 <b>772</b>	283 458 101 842	1 2 - 3	41 42 8 91	42 44 8 <b>94</b>
1987-88 Agriculture and other Primary Industries Natural Sciences Processing and Manufacturing Technologies Total	43 73 18 1 <b>34</b>	329 405 105 <b>839</b>	372 478 123 <b>973</b>	6 6 2 14	61 36 6 <b>103</b>	67 42 8 117

Source: Statistics Canada, Education, Culture and Tourism Division.

## **College Instructors**

In 1987-88, 3% of all female and 9% of all male college teaching staff were natural sciences and primary industries instructors (see Annex Table 9). Because the total number of female instructors in the field was considerably smaller than that of men, women made up only 14% of the natural sciences and primary industries teachers that year, up from 8% in 1976-77.

Although the teaching staff in this field are aging, female instructors are younger and have less teaching experience than their male counterparts. In 1976-77, the median ages of male and female instructors were 39 and 34 years of age, respectively. By 1987-88, the median ages of male and female staff had increased to 44 and 39 years, respectively. Over this same period, the average years of teaching experience jumped from 8.2 to 12.3 years for men and from 6.5 to 8 years for women.

Women's representation among administrators in the field has also improved over the years. By 1987-88, 12% of the academic administrators in this field were women, up from 3% in 1976-77. Although female teachers and administrators are gaining ground, they are very obviously underrepresented in this field. Even in the natural sciences, where women represent 50% of students, women held only 15% of the teaching and 14% of the administrative positions.

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Chart 8. Health Sciences Career Program Graduates, by Gender, 1989



# **Trends in Diploma Attainment**

Although health has consistently been the most popular field among women, it is losing ground to other college career program fields. In 1989, 29% of all female graduates earned their diplomas in the health programs, down from 44% in 1977. On the other hand, consistently more men are completing diplomas in health: 8% in 1989, representing an increase of three percentage points from the 5% in 1977.

Women earned 9 696 career program diplomas in the health sciences in 1989, a 9% drop since 1977. Contrary to the trends for graduates in the natural sciences and primary industries and in engineering and applied sciences, the number of female health sciences graduates fell during the early part of the period under review, from 10 691 in 1977

to 8 444 in 1982. It increased thereafter, but did not recover to the 1977 level because of the fewer women completing studies in nursing: 6 892 in 1989 compared with 8 071 in 1977.

The number of men graduating in the health sciences, while low, increased by 84% from 991 in 1977 to 1 824 in 1989. Between 1977 and 1989, growth was greatest for male diploma recipients in nursing (133% increase) and medical equipment and prosthetics (81% increase).

As Table 7 shows, there has been little change in the distribution of women among health programs over the years. The most popular program by far was nursing, which accounted for 71% of the female diploma recipients, down from 75% twelve years earlier.

Over the thirteen-year period, the most popular programs for males were diagnostic and treatment medical technologies and nursing, which together accounted for 83% of the male graduates. The proportion of men graduating with a nursing diploma increased from 32% in 1977 to 40% in 1989 at the expense of diagnostic and treatment medical technologies.

The health sciences field is somewhat less female-dominated than it was twelve years earlier. In 1989, 84% of all graduates in this field were women, down from 92% in 1977. Table 8 shows that although male representation in the field has increased, women still accounted for the vast majority of graduates in three of the four programs in the field and are gaining ground in the only male-dominated program, medical equipment and prosthetics technologies. Women's participation in this program increased from 29% of graduates in 1977 to 44% in 1989.

## Trends in Enrolments

From 1977-78 to 1989-90, female and male enrolment in the health sciences increased by 7% and 84%, respectively. Whereas male enrolment increased steadily to 5 593, female enrolments dipped

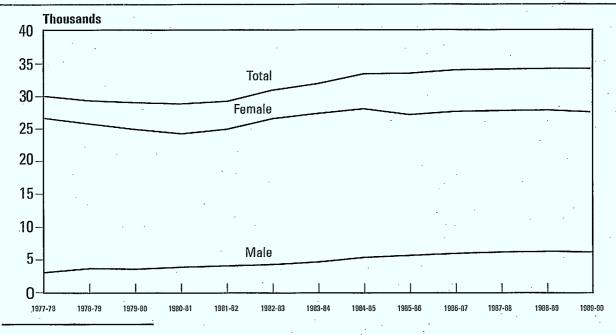
Table 7. Percentage Distribution of Career Program Graduates in Health Sciences, by Program Field and Gender, 1977, 1984 and 1989

<b>Male</b> 32 50	Female (perc 72 22	Male cent) 32	Female 71 23	
	72	32	•	40
	. –		•	
50 .	22	49	23	43
			,	70
9	1.	. 9	1	9
9.	5	10	. 5	. 8
.100	100	100	. 100	100
991	9 406	1 325	9 696	1 824
	.100	.100 100	100 100 100	100 100 100 100 100

by 10% between 1977-78 and 1980-81 to 24 273, then increased to 28 831 in 1989-90.

The distribution of women among health programs remained the same over the years. In 1989-90, 73% of the female students were registered in nursing and 21% in diagnostic and medical treatment technologies. As in 1977-78, most male students were also enrolled in these two programs in 1989-90.

Chart 9. Full-time Enrolment in College Career Programs in Health Sciences, by Gender, 1977-78 to 1989-90



Source: Annex Tables 3, 4 and 5.

Table 8. Women as a Percentage of Health Sciences Career Program Graduates, by Program Field, 1977, 1984 and 1989

Program field		1977	1	984	. 1	989
	(%)	(no.)	(%)	(no.)	(%)	(no.)
Nursing	96	8 071	94	6 772	90	6 892
Diagnostic and Treatment Medical Technologies Medical Equipment and	82	2 221	76	2 097	74	2 189
Prosthetics	29	36	43	87	44	126
Other Health-related Technologies	80	363	77	450	76	489
Total	92	10 691	88	9 406	84	9 696

Nursing attracted relatively more male students by 1989-90: 46% of those enrolled in the field, up from 30% twelve years earlier. Proportionately fewer male students were registered in the medical treatment technologies in 1989-90 (39%) than in 1977-78 (51%).

Because of the greater number of male nursing and medical treatment technologies students in 1989-90, women made up 89% and 73% of the students in these subfields, down from 96% and 78%, respectively, in 1977-78.

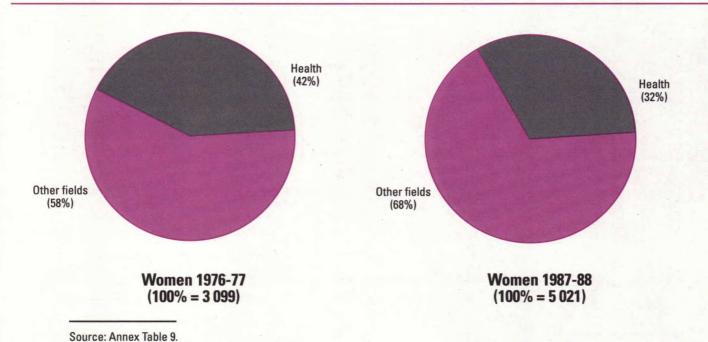
# **College Instructors**

Although there have been some shifts over the years in the distribution of female staff among fields, the health sciences still account for most of the female college teachers. In 1987-88, 32% of all female teachers were health sciences instructors, a decrease of 10 percentage points from 42% in 1976-77. Only 3% of total male teachers were health sciences instructors. Consequently, women accounted for 86% of the health sciences teachers, a percentage comparable with that in 1976-77.

Analysis of the median age and years of experience for health sciences teachers indicates that there has not been much recruitment of younger teachers into the field. In 1976-77, the median age for both male and female teachers was 35 years. By 1987-88 it had risen to 42 years of age. The average years of teaching experience for men and women were 5.4 and 6.1, respectively, at the beginning of the period, and 11.6 and 11.3 years by 1987-88.

Female academic administrators in the health sciences rose from 66% of the total, or 73 women, in 1976-77 to 76%, or 75 women, in 1987-88. Although this was a substantial increase, women in this field were not as well represented in administrative leadership positions as they were among teaching ones.

Chart 10. Female Health Sciences College Instructors, 1976-77 and 1987-88



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Chart 11. Social Sciences and Services Career Program Graduates, by Gender, 1989



# **Trends in Diploma Attainment**

The social sciences and services field is the second most popular field for women after the health sciences. In 1989, 20% of all 32 965 female career program graduates completed their studies in this field, a slight increase from 18% of 24 052 women graduates in 1977. Only 9% (2 234) of the male graduates secured social sciences diplomas in 1989, the same share as in 1977.

In 1989, this field thus awarded 6 509 career program diplomas to women, an increase of 52% since 1977. Unlike in other fields, the number of female graduates rose fairly steadily over the thirteen-year period. The largest growth in female graduations occurred in protection and correction services (221% increase), followed by social sciences (102% increase), and recreation and sport programs (37% increase).

Between 1977 and 1989, the number of men graduating with a social sciences diploma increased by 54%, from 1 454 to 2 234. Growth in male graduations was also greatest in the protection and correction services (159% increase), followed by the social sciences (70% increase). The number of male diploma recipients in educational and counselling services decreased by 48% from 309 to 160.

There were some shifts in the distribution of women graduates among programs. Although educational and counselling services still graduated the largest share of women, their concentration in this program at 35% was not as great as in 1977 (44%). Proportionately more women graduated with a diploma in protection and correction services by 1989, 13%, up from 6% in 1977.

By 1989, male graduates were far more likely to earn their diplomas in the protection and correction services than they were in 1977, at the expense of the educational and counselling services.

Table 10 shows that women have consistently made up the majority of graduates in all subfields of the social sciences and services except for protection and correction services, despite the increase in the number of male graduates in this field.

#### Trends in Enrolments

Over the thirteen-year period, female and male enrolment in the social sciences and services field has grown steadily, by 65% and 54%, respectively.

The most popular subfields for women were educational and counselling services and the social services, which accounted for 35% and 31% of all female students in this field. The most popular programs for men were protection and correction services as well as recreation and sport programs, which accounted for 58% and 19% of male enrolments, respectively.

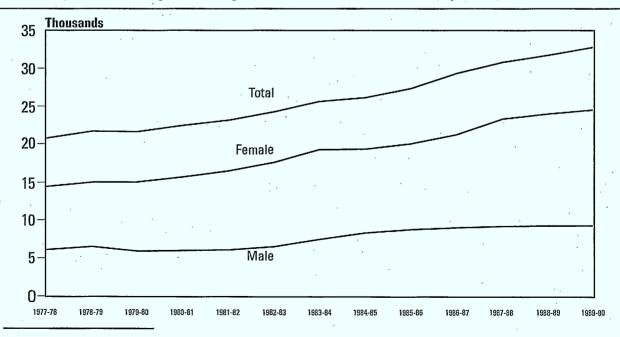
Table 9. Percentage Distribution of Career Program Graduates in Social Sciences and Services, by Program Field and Gender, 1977, 1984 and 1989

	19:	77	198	34	1989							
Program field	Female	Male	Female	Male	Female	Male						
	(percent)											
Protection and Correction												
Services	6 ·	35	12	53	13	59						
Social Services	27	17	27	12	31	12						
Recreation and Sport	20	25	20	20	18	20						
Educational and Counselling												
Services	44	21	. 38	13	35	7						
Personal Development					-							
Social Sciences	2	-2	2	1	· 3	. 2						
Total	100	100	· 100	100	100	100						
Total number	4 292	1 454	5 961	2 101	6 509	2 234						

# College Instructors

In contrast to other fields, close to half (48%) of the social sciences teaching staff were women in 1987-88, up from 35% in 1976-77.

Chart 12. Full-time Enrolment in College Career Programs in Social Sciences and Services, by Gender, 1977-78 to 1989-90



Source: Annex Tables 3, 4 and 5.

Table 10. Women as a Percentage of Social Sciences and Services Career Program Graduates, by Program Field, 1977, 1984 and 1989

Program field	1	977	1	984	1989		
	(%)	(no.)	(%)	(no.)	(%)	(no.)	
Protection and Correction							
Services	35	268	40	741	40	861	
Social Services	83	1 167	87	1 634	88	2 006	
Recreation and Sport	70	844	74	1 175	73	1 154	
Educational and Counselling							
Services	86	1 908	89	2 284	93	2 298	
Personal Development	79	11	44	8	-		
Social Sciences	78	94	82	119	81	190	
Total	75	4 292	74	5 961	74	6 509	

Female social sciences teachers were younger than their male counterparts. On average, the male social sciences teacher was 43 years of age and had 11.3 years of teaching experience in 1987-88. The average female instructor was 39 years old with 8.8 years of teaching experience (see Annex Tables 10 and 11).

Table 11. Full-time College Teachers in Social Services, by Staff Position and Gender, 1976-77 and 1987-88

Staff position	Female	Male	Total
		(number)	
1976-77			
Teaching staff	255	475	730
Administrators	16	50	66
1987-88			
Teaching staff	586	643	1 229
Administrators	25	37	62
Source: Annex Table 9.			

Women's representation among academic administrators in the social sciences has also improved, from 24% in 1976-77 to 40% in 1987-88. However, the numbers are small. Female administrators increased in number from 16 to 25, while the number of men fell from 50 to 37 over this period.

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The analysis in this fact book is based on data obtained from the Education, Culture and Tourism Division of Statistics Canada.

College — includes all institutions providing postsecondary education, apart from the university (degree-granting) system, such as colleges of applied arts and technology, the Quebec collèges d'enseignement général et professionnel (cégeps), technical institutes and other establishments providing training in specialized fields such as agriculture, arts and forestry and/or university transfer programs. Training facilities in hospitals, such as schools of nursing and other health sciences technologies, which provide postsecondary career programs, are also included.

Career Program — prepares a student to enter an occupation upon completion of the program, at an occupational level between that of the university-trained professional and the skilled tradesperson. Secondary school completion or equivalent is a normal prerequisite for entry. These programs require at least one school year of 24 weeks or more, but more commonly last two or three years and sometimes longer. One-year programs usually lead to a certificate whereas the longer programs lead to a diploma. Unless otherwise indicated, hospital-based training in nursing and health technologies is included in this classification.

**Teacher** — includes both postsecondary and trades teachers, since some teach at both levels. Teachers are classified to postsecondary or trades accord-

ing to the percentage of time spent teaching at each level.

Technician — is an individual who has one to two years of postsecondary education or equivalent in a technical institute or college in a current science or engineering technology. Technicians are the specialists who apply existing technological knowledge.

**Technologist** — is an individual who has two or more years of postsecondary education or equivalent in a technical institute or college in a current science or engineering technology. Technologists are the specialists who **translate** designs into working models and provide data for ongoing design and quality control for technology applications.

Full-time/Part-time Student — has no commonly accepted definition, so Statistics Canada reports full-time or part-time registration status as supplied by each respondent. Roughly 75% of part-time career enrolment is not classified to a field of study or to a gender. Therefore, part-time enrolment trends are not included in this publication.

Foreign Student — is a non-Canadian student who does not have "permanent resident" status. Because foreign students account for only 1% of total student enrolment in Canadian colleges, a further breakdown by program field and gender is not included in this report.

**Age Group** — is not available for breakdown by program field.

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#### **Engineering and Applied Sciences**

Chemical Technologies
Chemical Engineering Technologies
Biochemical Technologies
Metallurgical Chemical Technologies
Industrial Chemical Technologies
Photographic Chemical Technology
Chemistry

Electrical/Electronic Technologies
Electrical/Electronic Engineering Technologies
Avionics Technologies
Marine Electronics Technologies
Electromechanical Technologies
Telecommunications Technologies

Mathematics and Computer Science Mathematics Computer Science

Transportation Technologies
Air Transportation
Motor Transportation
Rail Transportation
Marine Transportation

Engineering — Industrial

Engineering Technologies
Engineering — General
Engineering — Mechanical
Engineering — Architectural and Construction
Engineering — Aeronautical

#### **Natural Sciences and Primary Industries**

Natural Sciences
Agriculture
Agricultural Technology/Science/Engineering
Agricultural Business
Biology
Plant Sciences
Animal Sciences

Primary Industries
Forestry Technologies
Mining Technologies
Fishing Technologies
Hunting and Trapping
Petroleum Resources Technology

Resource Processing Technologies
Forest Products Processing
Metal Processing
Petroleum Refining Technologies
Food Processing Technologies

Environmental and Conservation Technologies
Environmental Control/Protection Technologies
Land Resources Technologies
Wildlife and Forest Conservation Technologies
Water Science Technologies
Air Purification Technologies

#### **Health Sciences**

Nursing
Diploma Nursing
Nursing Aide/Orderly
Nursing Refresher
Psychiatric or Mental Health Nursing
Dental Nursing

Diagnostic and Treatment Medical Technologies
Emergency Paramedical Technologies
Chiropractic Technologies
Medical Laboratory Technologies
X-ray/Radiology/Radiotherapy/Nuclear
Medicine
Technologies

Combined Laboratory and X-ray Technology Physiotherapy Dental Hygiene/Assistant Technologies Pharmacy Technologies Medical Equipment and Prosthetics
Dental Appliances
Optical Prosthetics/Lenses
Orthopedic Prosthetics
Auditory Prosthetics

Other Health-related Technologies
Dietetics/Dietary Technologies
Mental Health Technologies
Speech Therapy
Health Care Support Technologies
Biological Sciences Technologies
Public/Environmental Health
Health Education

#### Social Sciences and Services

Protection and Correction Services
Correctional Technologies
Paralegal Technologies/Legal Studies/Legal
Assistant
Police Technologies/Criminology
Protection Technologies

Social Services
Child Care Services
Youth Services
Gerontology
Care of the Disabled
Social Services/Welfare Technologies
Domestic Science and Related
Community Planning/Urban Design

Recreation and Sport
Recreation Leadership/Leisure Services
Physical Education Instruction
Travel and Tourism

Educational and Counselling Services Counselling Services Technologies Educational Services

Personal Development Orientation Courses Communications Skills Development Life Skills Occupational Skills Development

Social Sciences
Anthropology
Archaeology
Economics
Geography
Political Science
Psychology
Sociology

#### Arts

Fine Arts
Commercial and Promotional Arts
Graphic and Audio-visual Arts
Creative and Design Arts
Personal Arts
Mass Communications
Other Applied Arts

#### Humanities

Journalism
Library Science
Religion/Theology
Languages
History
Philosophy
Other Humanities

#### **Business and Commerce**

Secretarial Science Management and Administration Merchandising and Sales Service Industry Technologies

# Annex Tables

Annex Table 1.	Female Graduates of College Career Programs, by Program Field, 1977 to 1989	28
Annex Table 2.	Male Graduates of College Career Programs, by Program Field, 1977 to 1989	29
Annex Table 3.	Total Graduates of College Career Programs, by Program Field, 1977 to 1989	. <b>3</b> 0
Annex Table 4.	Full-time Enrolment of Women in College Career Programs, by Program Field, 1977-78 to 1989-90	31
Annex Table 5.	Full-time Enrolment of Men in College Career Programs, by Program Field, 1977-78 to 1989-90	. 32
Annex Table 6.	Full-time Total Enrolment in College Career Programs, by Program Field, 1977-78 to 1989-90	. 33
Annex Table 7.	College Career Program Enrolment, by Age Group, 1983-84 and 1989-90	34
Annex Table 8.	Part-time Enrolment in College Career Programs, 1983, 1986, 1987, 1988 and 1989	34
Annex Table 9.	Full-time College Teachers, by Teaching Field, Staff Position and Gender, 1976-77 to 1987-88	35
Annex Table 10.	Median Age of Full-time College Teachers, by Teaching Field and Gender, 1976-77 to 1987-88	36
Annex Table 11.	Full-time College Teachers, by Average Years of Experience, Teaching Field and Gender, 1976-77 to 1987-88	37

Annex Table 1. Female Graduates of College Career Programs, by Program Field, 1977 to 1989

Program field	1977	. 1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
							(number)		-				
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	873 216 33 400 9 215 108 4 90 —	1 084 262 45 463 14 300 128 14 139 —	1 338 311 41 587 13 386 177 12 169 —	1 336 274 44 576 14 428 177 16 214 —	1 646 274 54 818 11 489 206 13 228 —	2 016 283 55 1 125 7 546 211 26 275 —	2 363 282 68 1 458 9 546 269 30 213 —	3 210 278 118 2 222 29 563 261 35 236 —	3 205 284 197 2 105 34 585 243 34 250 — 58	2 789 311 226 1 658 47 547 219 47 224 —	2 345 306 206 1 280 24 529 201 54 221 — 53	2 080 284 180 1 091 21 504 162 41 238 1	1 931 286 158 1 005 18 464 152 54 207 1
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	<b>557</b> 367 75 . 29 86	696 456 86 34 120	813 584 82 21 126	878 556 117 39 166	999 608 164 51 176	970 584 159 50 177	1 072 665 203 33 171	1 073 656 198 58 161	1 036 676 145 49 166	1 <b>054</b> 709 137 51 157	1 007 691 119 76 121	<b>795</b> 559 88 42 106	863 577 99 69 118
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	10 691 8 071 2 221 36 363	9 717 7 225 2 150 30 312	<b>9 327</b> 6 791 2 141 70 325	8 <b>723</b> 6 564 1 847 77 235	8 <b>657</b> 6 431 1 906 82 238	8 444 6 179 1 913 55. 297	8 <b>529</b> 6 301 1 839 66 323	9 4 <b>06</b> 6 772 2 097 87 450	9 677 7 056 2 113 84 424	9 068 6 530 2 023 97 418	9 634 6 952 2 108 115 459	9 466 6 778 2 132 108 448	9 696 6 892 2 189 126 489
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	4 292 268 1 167 844 1 908 11 94	4 693 316 1 267 932 2 027 13 138	4 811 446 1 299 900 1 990 9	4 803 471 1 290 964 1 919 17 142	5 155 488 1 338 1 138 2 034 18 139	5 140 510 1 273 1 208 1 982 19 148	5 421 610 1 400 1 078 2 224 14 95	5 961 741 1 634 1 175 2 284 8 119	5 908 778 1 616 1 104 2 260 17 133	5 815 772 1 640 1 059 2 189 — 155	6 155 861 1 675 1 212 2 256 — 151	6 413 955 1 887 1 257 2 117 — 197	6 509 861 2 006 1 154 2 298 — 190
Other Arts Humanities Business and Commerce Other*	7 <b>639</b> 1 522 480 5 413 224	8 823 1 615 512 6 453 243	10 087 2 183 559 7 248 97	11 580 2 459 502 8 478 141	11 864 2 584 485 8 656 139	12 647 2 768 495 9 250 134	12 <b>731</b> 2 573 532 9 440 186	14 2 <b>50</b> 2 613 640 10 807 190	13 793 2 526 618 10 419 230	13 622 2 452 617 10 355 198	14 097 2 599 620 10 646 232	13 957 2 684 646 10 400 227	13 966 2 715 617 10 376 258
Total, all fields	24 052	25 013	26 376	27 320	28 321	29 217	30 116	33 900	33 619	32 348	33 238	32 711	32 965

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 2. Male Graduates of College Career Programs, by Program Field, 1977 to 1989

Program field	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					·		(number)						
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	6 759 305 2 065 564 200 3 625 1 555 849 884 7	7 609 324 2 361 609 221 4 094 1 788 1 037 924 9	8 169 375 2 599 625 256 4 314 1 865 1 055 1 093 6 295	8 781 395 2 641 735 243 4 767 1 957 1 274 1 161 15 360	9 366 383 2 721 949 289 5 024 2 079 1 241 1 185 27 492	10 034 473 2 925 1 184 272 5 180 1 951 1 472 1 185 10 562	10 737 407 2 948 1 609 334 5 439 2 113 1 455 1 238 18 615	12 815 436 3 817 2 463 282 5 817 2 168 1 706 1 235 10 698	13 560 382 4 260 2 725 294 5 899 2 196 1 581 1 306 23 793	13 054 471 4 392 2 604 237 5 350 1 958 1 460 1 188 30 714	11 692 464 3 741 2 297 259 4 931 1 672 1 390 1 061 32 776	10 743 439 3 549 2 191 176 4 388 1 387 1 343 1 038 40 580	10 116 435 3 015 2 087 222 4 357 1 352 1 370 1 087 47 501
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	1 730 498 783 69 380	2 017 667 851 117 382	1 996 686 847 109 354	2 092 745 863 109 375	2 200 760 943 119 378	2 171 685 967 114 405	2 354 745 1 098 138 373	2 467 783 1 152 131 401	2 459 854 997 124 484	2 311 805 905 107 494	2 120 724 785 117 494	1 859 565 667 130 497	1 810 566 612 124 508
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	9 <b>91</b> 313 498 88 92	<b>992</b> 250 554 124 64	1 068 298 572 122 76	9 <b>53</b> 262 500 113 78	1 <b>018</b> 306 545 115 52	1 106 329 585 122 70	<b>1 126</b> 353 590 117 66	<b>1 325</b> 426 648 116 135	1 421 439 703 147 132	1 <b>522</b> 520 764 136 102	1 <b>537</b> 569 724 149 95	1 783 686 773 170 154	1 824 729 785 159 151
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	1 454 508 243 364 309 3 27	1 504 571 224 382 299 1 27	1 534 705 208 325 262 3	1 <b>596</b> 764 227 329 238 4 34	1 708 920 201 328 234 3 22	1 <b>592</b> 818 203 318 233 4 16	1 890 985 233 360 272 11 29	2 101 1 122 246 423 274 10 26	2 263 1 240 286 425 271 11 30	2 206 1 251 276 405 236 — 38	2 421 1 437 290 401 252 — 41	2 235 1 284 271 432 199 — 49	2 234 1 317 275 436 160 — 46
Other Arts Humanities Business and Commerce Other*	4 719 1 229 114 3 187 189	5 001 1 321 149 3 388 143	<b>5 337</b> 1 525 117 3 621 74	<b>5 819</b> 1 554 140 4 011 114	6 081 1 587 122 4 282 90	6 328 1 686 153 4 371 118	6 367 1 685 175 4 352 155	<b>7 081</b> 1 739 164 5 046 132	7 283 1 790 200 5 205 88	7 <b>213</b> 1 832 230 5 016 135	<b>7 613</b> 1 906 208 5 330 169	7 <b>618</b> 1 994 256 5 228 140	<b>7 783</b> 1 912 245 5 423 203
Total, all fields	15 653	17 123	18 104	19 241	20 373	21 231	22 474	25 789	26 986	26 306	25 383	24 238	23 767

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 3. Total Graduates of College Career Programs, by Program Field, 1977 to 1989

Program field	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
			•••				(number)				-		
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	7 632 521 2 098 964 209 3 840 1 663 853 974 7	8 693 586 2 406 1 072 235 4 394 1 916 1 051 1 063 9	9 507 686 2 640 1 212 269 4 700 2 042 1 067 1 262 6 323	10 117 669 2 685 1 311 257 5 195 2 134 1 290 1 375 15 381	11 012 657 2 775 1 767 300 5 513 2 285 1 254 1 413 27 534	12 050 756 2 980 2 309 279 5 726 2 162 1 498 1 460 10 596	13 100 689 3 016 3 067 343 5 985 2 382 1 485 1 451 18 649	16 025 714 3 935 4 685 311 6 380 2 429 1 741 1 471 10 729	16 765 666 4 457 4 830 328 6 484 2 439 1 615 1 556 23 851	782 4 618 4 262 284 5 897 2 177 1 507 1 412 30 771	14 <b>037</b> 770 3 947 3 577 283 5 460 1 873 1 444 1 282 32 829	12 823 723 3 729 3 282 197 4 892 1 549 1 384 1 276 41 642	12 047 721 3 173 3 092 240 4 821 1 504 1 424 1 294 48 551
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	2 287	2 713	2 809	2 970	3 199	3 141	3 426	3 540	3 495	3 365	3 127	2 654	2 673
	8 <b>6</b> 5	1 123	1 270	1 301	1 368	1 269	1 410	1 439	1 530	1 514	1 415	1 124	1 143
	858	937	929	980	1 107	1 126	1 301	1 350	1 142	1 042	904	755	711
	98	151	130	148	170	164	171	189	173	158	193	172	193
	466	502	480	541	554	582	544	562	650	651	615	603	626
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	11 682	10 709	10 395	9 676	9 675	9 550	9 655	10 731	11 <b>098</b>	10 590	11 171	11 249	11 <b>52</b> 0
	8 384	7 475	7 089	6 826	6 737	6 508	6 654	7 198	7 495	7 050	7 521	7 464	7 621
	2 719	2 704	2 713	2 347	2 451	2 498	2 429	2 745	2 816	2 787	2 832	2 905	2 974
	124	154	192	190	197	177	183	203	231	233	264	278	285
	455	376	401	313	290	3 <b>6</b> 7	389	585	556	520	554	602	640
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	5 746	6 197	6 345	6 399	6 863	6 732	7 311	8 062	8 171	8 021	8 576	8 648	8 743
	776	887	1 151	1 235	1 408	1 328	1 595	1 863	2 018	2 023	2 298	2 239	2 178
	1 410	1 491	1 507	1 517	1 539	1 476	1 633	1 880	1 902	1 916	1 965	2 158	2 281
	1 208	1 314	1 225	1 293	1 466	1 526	1 438	1 598	1 529	1 464	1 613	1 689	1 590
	2 217	2 326	2 252	2 157	2 268	2 215	2 496	2 558	2 531	2 425	2 508	2 316	2 458
	14	14	12	21	21	23	25	18	28	—	—	—	—
	121	165	198	176	161	164	124	145	163	193	192	246	236
Other Arts Humanities Business and Commerce Other*	12 358	13 824	15 424	17 <b>399</b>	17 945	18 975	19 098	21 331	21 076	20 835	21 710	21 <b>575</b>	21 749
	2 751	2 936	3 708	4 013	4 171	4 454	4 258	4 352	4 316	4 284	4 505	4 678	4 627
	594	661	676	642	607	648	707	804	818	847	828	902	862
	8 600	9 841	10 869	12 489	12 938	13 621	13 792	15 853	15 624	15 371	15 976	15 628	15 799
	413	386	171	255	229	252	341	322	318	333	401	367	461
Total, all fields	39 705	42 136	44 480	46 561	48 694	50 448	52 590	59 689	60 605	58 654	58 621	56 949	56 732

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 4. Full-time Enrolment of Women in College Career Programs, by Program Field, 1977-78 to 1989-90

Program field	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
			<del>-</del>				(number	)		•		Heder	
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	4 941 1 050 155 2 080 63 1 593 518 55 717 7 296	5 898 1 100 266 2 631 49 1 852 603 100 792 5 352	6 180 1 056 212 2 997 54 1 861 666 71 846 11 267	7 111 1 032 264 3 901 72 1 842 752 92 906 12 80	8 772 1 071 334 5 196 76 2 095 853 135 990 12 105	10 895 1 165 470 6 998 109 2 153 843 151 1 004 16 139	11 793 1 174 621 7 725 145 2 128 848 149 961 —	11 124 1 254 741 6 938 133 2 058 733 142 988 —	9 569 1 321 791 5 301 120 2 036 699 176 937 1 223	8 300 1 309 752 4 031 87 2 121 681 222 1 012 1 205	<b>7 530</b> 1 179 660 3 391 114 2 186 603 177 1 152 53 201	7 557 1 111 658 3 431 109 2 248 614 211 1 209 2	7 886 1 049 644 3 556 121 2 516 637 235 1 393 6 245
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	1 997 1 105 241 97 554	2 543 1 437 327 142 637	2 770 1 626 359 143 642	<b>3 053</b> 1 647 470 166 770	3 001 1 519 489 201 792	<b>3 210</b> 1 608 566 216 820	<b>3 111</b> 1 710 473 229 699	3 043 1 733 380 247 683	2 979 1 755 316 267 641	2 806 1 679 298 287 542	2 757 1 624 261 254 618	2 719 1 832 259 232 396	2 719 1 797 277 187 458
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	26 897 20 301 5 494 146 956	25 561 19 059 5 350 246 906	24 759 18 362 5 269 221 907	24 273 18 293 4 852 233 895	25 208 19 154 4 823 211 1 020	26 953 20 411 5 181 236 1 125	27 638 20 706 5 409 258 1 265	28 411 21 259 5 581 290 1 281	28 188 20 921 5 572 332 1 363	28 749 21 344 5 596 336 1 473	28 858 21 490 5 704 329 1 335	28 961 21 215 6 042 340 1 364	28 831 21 123 6 003 354 1 351
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	14 465 1 293 3 881 3 028 5 402 27 834	15 194 1 493 4 259 3 051 5 516 36 839	15 343 1 593 4 232 3 168 5 590 46 714	16 013 1 728 4 406 3 407 5 744 78 650	16 602 1 898 4 539 3 596 6 016 49 504	17 490 2 139 4 898 3 761 6 159 39 494	18 535 2 516 5 229 3 795 6 459 39 497	18 853 2 673 5 512 3 580 6 521 53 514	19 650 2 759 5 535 4 063 6 644 92 557	20 729 2 910 6 037 4 328 6 882 — 572	22 236 3 080 6 841 4 332 7 328 — 655	23 019 3 252 7 133 4 270 7 692 — 672	23 978 3 355 7 366 4 191 8 442 — 624
Other Arts Humanities Business and Commerce Other*	36 087 7 907 1 616 25 060 1 504	39 292 8 847 1 608 28 052 785	43 130 9 103 1 736 31 418 873	<b>45 408</b> 9 471 1 773 33 155 1 009	<b>47 177</b> 9 892 1 802 34 309 1 174	<b>50 899</b> 10 018 1 936 37 634 1 311	<b>54 556</b> 10 582 1 957 40 035 1 982	55 492 10 782 1 927 40 662 2 121	<b>55 861</b> 10 962 1 953 40 380 2 566	<b>55 752</b> 11 191 1 898 40 474 2 189	<b>56 008</b> 11 716 1 960 39 701 2 631	<b>55 791</b> 11 888 1 849 39 074 2 980	<b>54 914</b> 12 169 2 102 37 756 2 887
Total, all fields	84 387	88 488	92 182	95 858	100 760	109 447	115 633	116 923	116 247	116 336	117 389	118 047	118 328

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 5. Full-time Enrolment of Men in College Career Programs, by Program Field, 1977-78 to 1989-90

Program field	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
							(number)						
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	33 750 1 361 11 684 2 693 1 062 16 950 6 056 4 165 5 429 355 945	36 497 1 444 12 542 3 164 1 018 18 329 6 582 4 695 5 537 413 1 102	38 005 1 494 12 592 3 646 1 164 19 109 6 582 5 092 5 685 448 1 302	40 458 1 561 13 252 4 717 1 126 19 802 6 735 5 445 5 561 418 1 643	43 426 1 562 14 155 6 067 1 204 20 438 6 634 6 177 5 590 321 1 716	48 610 1 660 16 051 7 711 1 205 21 983 7 016 6 935 5 836 378 1 818	53 071 1 783 17 931 9 461 1 208 22 688 8 061 6 051 5 410 35 3 131	53 289 1 782 18 167 10 739 1 205 21 396 7 201 5 991 5 190 35 2 979	50 899 1 862 17 301 10 430 1 066 20 240 6 568 5 831 5 016 50 2 775	46 582 1 819 15 422 9 086 860 19 395 6 012 6 034 4 947 61 2 341	43 331 1 707 13 581 8 279 877 18 887 5 357 5 841 5 369 542 1 778	41 486 1 583 12 513 8 402 874 18 114 5 239 5 638 5 282 91 1 864	40 692 1 463 11 900 8 426 859 18 044 5 391 5 514 5 317 81 1 741
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	5 960 1 647 2 315 460 1 538	6 646 2 087 2 420 470 1 669	7 208 2 421 2 577 518 1 692	7 555 2 336 2 857 550 1 812	7 593 2 128 2 994 651 1 820	7 940 2 327 3 073 709 1 831	7 926 2 452 2 964 586 1 924	<b>7 582</b> 2 500 2 568 515 1 999	7 277 2 315 2 431 490 2 041	6 791 2 035 2 233 534 1 989	6 210 1 827 2 008 552 1 823	6 022 1 862 1 911 575 1 674	5 993 1 762 1 815 597 1 819
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	3 033 901 1 555 371 206	3 243 1 020 1 577 407 239	3 359 1 129 1 611 379 240	3 358 · 1 210 1 571 388 189	3 <b>525</b> 1 374 1 594 366 191	3 767 1 502 1 676 367 222	4 193 1 680 1 805 402 306	4 690 1 952 2 039 426 273	4 998 2 285 2 011 440 262	5 313 2 484 2 058 414 357	5 560 2 604 2 162 437 357	5 645 2 549 2 262 433 401	5 593 2 556 2 189 458 390
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	5 991 2 791 838 1 401 754 15	6 313 3 157 833 1 353 767 11 192	6 122 3 111 876 1 228 778 11 118	6 251 3 268 824 1 218 775 31 135	6 299 3 343 823 1 225 775 20 113	6 776 3 513 917 1 357 841 35 113	7 580 3 917 1 032 1 549 933 35	8 038 4 255 1 078 1 562 980 31 132	8 401 4 429 1 075 1 734 952 50 161	8 942 4 873 1 085 1 855 956 — 173	9 105 5 058 1 104 1 839 921 — 183	9 175 5 359 1 105 1 735 802 — 174	9 201 5 305 1 128 1 717 879 — 172
Other Arts Humanities Business and Commerce Other*	25 675 6 806 582 17 292 995	26 701 7 047 524 18 553 577	28 066 6 890 603 20 002 571	28 892 7 180 608 20 483 621	28 976 7 118 643 20 554 661	31 196 7 538 700 21 880 1 078	33 951 8 283 774 23 136 1 758	35 349 8 584 867 23 933 1 965	36 353 8 664 822 24 663 2 204	36 519 8 666 864 25 411 1 578	36.485 8 780 855 24 898 1 952	36 004 8 721 871 24 355 2 057	34 333 8 722 869 22 875 1 867
Total, all fields	74 409	79 400	82 760	86 514	89 819	98 289	106 721	108 948	107 928	104 147	100 691	98 332	95 812

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 6. Full-time Total Enrolment in College Career Programs, by Program Field, 1977-78 to 1989-90

Program field	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
		•					(number	)	****			**************************************	
Engineering and Applied Sciences Chemical Technologies Electrical/Electronic Technologies Mathematics and Computer Science Transportation Technologies Engineering Technologies General Mechanical Architectural and Construction Aeronautical Industrial	38 691 2 411 11 839 4 773 1 125 18 543 6 574 4 220 6 146 362 1 241	42 395 2 544 12 808 5 795 1 067 20 181 7 185 4 795 6 329 418 1 454	44 185 2 550 12 804 6 643 1 218 20 970 7 248 5 163 6 531 459 1 569	47 569 2 593 13 516 8 618 1 198 21 644 7 487 5 537 6 467 430 1 723	52 198 2 633 14 489 11 263 1 280 22 533 7 487 6 312 6 580 333 1 821	59 505 2 825 16 521 14 709 1 314 24 136 7 859 7 086 6 840 394 1 957	64 864 2 957 18 552 17 186 1 353 24 816 8 909 6 200 6 371 35 3 301	64 413 3 036 18 908 17 677 1 338 23 454 7 934 6 133 6 178 35 3 174	60 468 3 183 18 092 15 731 1 186 22 276 7 267 6 007 5 953 51 2 998	54 882 3 128 16 174 13 117 947 21 516 6 693 6 256 5 959 62 2 546	50 861 2 886 14 241 11 670 991 21 073 5 960 6 018 6 521 595 1 979	49 043 2 694 13 171 11 833 983 20 362 5 853 5 849 6 491 93 2 076	48 578 2 512 12 544 11 982 980 20 560 6 028 5 749 6 710 87 1 986
Natural Sciences and Primary Industries Natural Sciences Primary Industries Resource Processing Technologies Environmental and Conservation Technologies	<b>7 957</b> 2 752 2 556 557 2 092	9 189 3 524 2 747 612 2 306	9 978 4 047 2 936 661 2 334	10 608 3 983 3 327 716 2 582	10 594 3 647 3 483 852 2 612	11 150 3 935 3 639 925 2 <b>6</b> 51	11 037 4 162 3 437 815 2 623	10 625 4 233 2 948 762 2 682	10 256 4 070 2 747 757 2 682	9 597 3 714 2 531 821 2 531	8 967 3 451 2 269 806 2 441	8 741 3 694 2 170 807 2 070	8 712 3 559 2 092 784 2 277
Health Sciences Nursing Diagnostic and Treatment Medical Technologies Medical Equipment and Prosthetics Other Health-related Technologies	29 930 21 202 7 049 517 1 162	28 804 20 079 6 927 653 1 145	28 118 19 491 6 880 600 1 147	27 631 19 503 6 423 621 1 084	28 733 20 528 6 417 577 1 211	30 720 21 913 6 857 603 1 347	31 831 22 386 7 214 660 1 571	<b>33 101</b> 23 211 7 620 716 1 554	33 186 23 206 7 583 772 1 625	34 062 23 828 7 654 750 1 830	34 418 24 094 7 866 766 1 692	34 606 23 764 8 304 773 1 765	34 424 23 679 8 192 812 1 741
Social Sciences and Services Protection and Correction Services Social Services Recreation and Sport Educational and Counselling Services Personal Development Social Sciences	20 456 4 084 4 719 4 429 6 156 42 1 026	21 507 4 650 5 092 4 404 6 283 47 1 031	21 465 4 704 5 108 4 396 6 368 57 832	22 264 4 996 5 230 4 625 6 519 109 785	22 901 5 241 5 362 4 821 6 791 69 617	24 266 5 652 5 815 5 118 7 000 74 607	26 115 6 433 6 261 5 344 7 392 74 611	26 891 6 928 6 590 5 142 7 501 84 646	28 051 7 188 6 610 5 797 7 596 142 718	29 671 7 783 7 122 6 183 7 838 — 745	31 341 8 138 7 945 6 171 8 249 — 838	32 194 · 8 611 8 238 6 005 8 494 — 846	33 179 8 660 8 494 5 908 9 321 — 796
Other Arts Humanities Business and Commerce Other*	61 762 14 713 2 198 42 352 2 499	65 993 15 894 2 132 46 605 1 362	<b>71 196</b> 15 993 2 339 51 420 1 444	74 300 16 651 2 381 53 638 1 630	<b>76 153</b> 17 010 2 445 54 863 1 835	82 095 17 556 2 636 59 514 2 389	88 507 18 865 2 731 63 171 3 740	90 841 19 366 2 794 64 595 4 086	92 214 19 626 2 775 65 043 4 770	92 271 19 857 2 762 65 885 3 767	92 493 20 496 2 815 64 599 4 583	91 795 20 609 2 720 63 429 5 037	89 247 20 891 2 971 60 631 4 754
Total, all fields	158 796	167 888	174 942	182 372	190 579	207 736	222 354	225 871	224 175	220 483	218 080	216 379	214 140

<sup>\*</sup> Includes General Arts and Science and fields not elsewhere classified. Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 7. College Career Program Enrolment, by Age Group, 1983-84 and 1989-90

		1983-84		1989-90		
Age	Male	Female	Total	Male	Female	Total
			(num	ber)		
17 and under 18-24 25-29 30-34 35-39 40-44 45-49 50-59 60 and over Unknown	4 870 88 867 8 098 2 684 994 369 120 105 54	7 488 93 193 6 796 3 474 2 446 1 158 422 208 62 386	12 358 182 060 14 894 6 158 3 440 1 527 542 313 116 946	3 241 73 267 10 448 4 292 2 264 1 030 305 186 62 717	5 023 84 397 11 487 6 762 4 459 2 672 959 457 99 2 013	8 264 157 664 21 935 11 054 6 723 3 702 1 264 643 161 2 730
Total .	106 721	115 633	222 354	95 812	<b>118 32</b> 8	214 140

Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 8. Part-time Enrolment in College Career Programs, 1983, 1986, 1987, 1988 and 1989

Year	Male	Female Female	Total
		(number)	
1983 1986 1987 1988 1989	44 113 44 425 45 297 44 037 43 716	56 887 63 946 71 748 73 683 72 700	101 000 108 371 117 045 117 720 116 416

Source: Statistics Canada, Education, Culture and Tourism Division.

Full-time College Teachers, by Teaching Field, Staff Position and Gender, 1976-77 to 1987-88 Annex Table 9.

		Total teaching staff	2	Academic administrators		
Teaching field	Male	Female	Total	Male	Female	Total
1976-77			{number			
Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	2 630 772 237 475 2 951 731 1 021 839 360 7 065	25 70 1 298 255 1 451 210 498 590 153 3 099	2 655 842 1 535 730 4 402 941 1 519 1 429 513	230 91 37 50 852 80 79 98 595 1 260	3 73 16 173 12 21 22 11B 26B	233 94 110 66 1 025 92 100 120 713 1 528
1980-81	. 555	0.000	10 10 7	1 200	200	1 320
Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	3 158 753 248 446 3 353 846 1 124 982 401 7 958	52 83 1 249 319 1 745 251 611 692 191 3 448	3 210 836 1 497 765 5 098 1 097 1 735 1 674 592	211 83 25 43 998 69 84 75 770	6 2 71 18 316 16 30 27 243	217 85 96 61 1 314 85 114 102 1 013 1 773
1984-85 Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	3 394 688 253 471 3 406 800 947 1 092 567 8 212	99 105 1 265 359 1 827 263 556 663 345 3 655	3 493 793 1 518 830 5 233 1 063 1 503 1 755 912 11 867	272 100 19 30 905 48 55 75 727 1 326	5 6 58 13 334 9 19 17 289	277 106 77 43 1 239 57 74 92 1 016
1985-86 Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	3 804 799 272 536 3 932 947 1 147 1 226 612 9 343	115 120 1 440 455 2 119 316 639 802 362 4 249	3 919 919 1 712 991 6 051 1 263 1 786 2 028 974	330 108 23 51 1 100 84 82 91 843 1 612	4 7 84 24 461 17 29 29 386 580	334 115 107 75 1 561 101 111 120 1 229 2 192
1986-87 Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	3 982 870 283 635 4 258 1 045 1 202 1 388 643 10 028	155 131 1 598 557 2 407 390 738 918 361 4 848	4 137 1 001 1 881 1 192 6 665 1 435 1 940 • 2 286 1 004	347 112 23 36 1109 92 79 93 845 1 627	4 12 85 22 514 17 28 32 437 637	351 124 108 58 1 623 109 107 125 1 282 2 264
1987-88 Engineering and Applied Sciences Natural Sciences and Primary Industries Health Sciences Social Sciences and Services Other Arts Humanities Business and Commerce Other* Total	3 864 839 274 643 4 223 1 028 1 194 1 379 622 9 843	156 134 1 629 586 2 516 395 790 947 384 5 021	4 020 973 1 903 1 229 6 739 1 423 1 984 2 326 1 006 14 B64	318 103 24 37 1 111 78 68 85 880 1 593	9 14 75 25 580 20 31 37 492	327 117 99 62 1 691 98 99 122 1 372 2 296

<sup>1</sup> Excludes data for Quebec (not available by teaching field).
2 Includes both postsecondary and trades teachers, since some teach at both levels. Teachers are classified to postsecondary or trades according to the percentage of time spent teaching at each level.
\* Includes General Arts and Science fields not elsewhere classified.
Source: Statistics Canada, Education, Culture and Tourism Oivision.

 $Median\ Age\ of\ Full-time\ College\ Teachers, ^{1}\ by\ Teaching\ Field^{2}\ and\ Gender,\ 1976-77\ to\ 1987-88$ Annex Table 10.

	Male		Fen	nale	Total	
Teaching field	Median age	Total number	Median age	Total number	Median age	Total number
1976-77 Engineering and Applied Sciences	42	2 630	41	25	42	2 655
Natural Sciences and Primary Industries	39	772	. 34	70	38 35	842 1 535
Health Sciences Social Sciences and Services	35 37	237 475	35 34	1 298 255	36	730
Other	38	2 951	. 39	1 451	38	4 402
Arts	39	731 -	38	210	39	941
Humanities	37	1 021	37.5	498	37	1 519
Business and Commerce	40 39	839 360	40 37	590 1 <b>5</b> 3	40 38	1 429 513
Other* Total	39 39	7 065	36	3 099	. 39	10 164
1980-81	43	3 158	37	52	43	3 210
Engineering and Applied Sciences Natural Sciences and Primary Industries	41	753	34	83	40	836
Health Sciences	37	248	38	1 249	38	1 497
Social Sciences and Services	40	446	37	319	39 .	765
Other	41	3 353	39 40	1 745 <sup>-</sup> 251	40 41	5 098 1 097
Arts Humanities	42 40	846 1 124	40 . 39	611	41 40	1 735
Business and Commerce	. 41	982	41	692	41	1 674
Other*	38	401	37	191	37	592
Total	42	7 958	39	3 448	41	11 406
1984-85			•			
Engineering and Applied Sciences	44	3 394	35	99	44	3 493
Natural Sciences and Primary Industries	43 .	688	36	105 1 265	42 41	793 1 518
Health Sciences Social Sciences and Services	41 42	253 471	41 39	359	41	830
Other	43	3 406	41	1 827	42	5 233
Arts	.44	800	41	263	44	1 063
Humanities	43	947	42	556	43	1 503
Business and Commerce	43 41	1 092 567	41 40	663 345.	43 41	1 755 912
Other* . <b>Total</b>	43	8 212	40 41	3 655	42	11 867
1987-88 Engineering and Applied Sciences	45	3 864	37	156	45	4 020
Natural Sciences and Primary Industries	44	. 839	39	134	43	973
Health Sciences	42	274	42	1 629	42	1 903
Social Sciences and Services	43	643	39	. 586	41	1 229
Other	45	4 223	4 <u>2</u>	2 517 395	44 . 44	6 740 1 423
Arts Humanities	45 45	1 028 1 194	41 43	791	44 44	1 423
Business and Commerce	45	1 379	42	947	44	2 326
Other*	43	622	40	384	42	1 006
Total	45	9 843	42	5 022	44	14 865

Includes both postsecondary and trades teachers, since some teach at both levels. Teachers are classified to postsecondary or trades according to the percentage of time spent teaching at each level.
 Excludes data for Quebec (not available by teaching field).
 \* Includes General Arts and Science and fields not elsewhere classified.
 Source: Statistics Canada, Education, Culture and Tourism Division.

Annex Table 11. Full-time College Teachers, 1 by Average Years of Experience, Teaching Field 2 and Gender, 1976-77 to 1987-88

	Male		Female		Total	
Teaching field	Average experience	Total number	Average experience	Total number	Average experience	Total number
1976-77						
Engineering and Applied Sciences	7.5	2 630	7.1	25	7.5	2 655
Natural Sciences and Primary Industries	8.2	772	6.5	70	8.1	. 842
Health Sciences	5.4	237	6.1	1 298	6	1 535
Social Sciences and Services Other	6.9 7.9	475 2 951	6.6	255	6.8	730
Arts	6.3	2 901 731	8.7 7.4	1 451 210	8.2 6.6	4 402 941
Humanities	9.9	1 021	10.8	498	10.2	1 519
Business and Commerce	7	839	7.5	590	7.3	1 429
Other*	7.9	360	9.4	153	8.3	513
Total	7.6	7 065	7.4	3 099	7.5	10 164
1980-81						
Engineering and Applied Sciences	9	3 158	6.1	52	8.9	3 210
Natural Sciences and Primary Industries	10.4	753	8.2	83	10.2	836
Health Sciences	8.6	248	8.9	1 249	8.9	1 497
Social Sciences and Services Other	9.2 10	446 3 353	8.2 10.2	319 1 745	8.8	765
Arts	8.5	846	9.5	251	10.1 8.7	5 098 1 097
Humanities	12.7	1 124	11.8	611	12.4	1 735
Business and Commerce	8.8	982	9.2	692	8.9	1 674
_ Other*	9.1	401	9.8	191	9.3	592
Total	9.5	7 958	9.4	3 448	9.5	11 406
1984-85						
Engineering and Applied Sciences	9.9	3 394	6.1	99	9.8	3 493
Natural Sciences and Primary Industries	11.3	688	8.3	105	10.9	793
Health Sciences Social Sciences and Services	10.6 11.5	253 471	10.7	1 265	10.7	1 518
Other	11.8	3 406	9.3 11.5	359 1 827	10.5 11.7	830 5 233
Arts	10.6	800	10.1	263	10.4	อ 255 1 063
Humanities	15.2	947	13.7	556	14.6	1 503
Business and Commerce	10.2	1 092	10.3	663	10.2	1 755
Other*	9.8	567	10.9	345	10.1	912
Total	10.9	8 212	10.7	3 655	10.8	11 867
1987-88						
Engineering and Applied Sciences	11.5	3 864	6.8	156	11.3	4 020
Natural Sciences and Primary Industries	12.3	839	8	134	11.8	973
Health Sciences Social Sciences and Services	11.6 11.3	274 643	11.3	1 629	11.4	1 903
Other	12.8	643 4 223	8.8 11.7	586 2 517	10.1 12.4	1 229 6 740
Arts	11.5	1 028	10.2	395	11.1	1 423
Humanities	16.8	1 194	13.9	791	15.6	1 985
Business and Commerce	10.9	1 379	10.9	947	10.9	2 326
Other*	11.7	622	10.6	384	11.3	1 006
Total	12.1	9 843	11	5 022	11.7	14 865

Includes both postsecondary and trades teachers, since some teach at both levels. Teachers are classified to postsecondary or trades according to the percentage of time spent teaching at each level.
 Excludes data for Quebec (not available by teaching field).
 Includes General Arts and Science and fields not elsewhere classified.
 Source: Statistics Canada, Education, Culture and Tourism Division.

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