

# Women in academia - a growing minority

Judy Lee

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Women have long constituted the majority of people employed in the teaching profession. Yet at successively higher levels of education, the female component diminishes. Nowhere is this trend more evident than in universities, the upper echelon of the educational system, where women make up a minority of faculty members. But with the number of potential female candidates increasing over the last few decades (see [Growing pool of female PhDs](#)), the gender distribution of faculty on Canadian campuses has changed. Given the steady upturn of female participation in many other traditionally male-dominated occupations, what gains have women made as members of university faculties over the last 30 years?

Using administrative data (see [Data source and definitions](#)), this study analyzes growth since 1960 in the number of women teaching full time [\(1\)](#) at Canada's universities. The article also examines academic rank, field of specialization, qualifications, age structure, and earnings.

## Overall growth: 1960 to 1989

Even by 1989, women made up only a minority of university teachers. That year, the 7,200 female full-time teachers on Canadian campuses were vastly outnumbered by male faculty members who totalled almost 30,000 ([Chart A](#)). [\(2\)](#) However, since 1960, the number of women has risen tenfold, compared with a fivefold increase for men ([Chart B](#)). As a result, there has been a slow but steady growth in female representation, from 11% of all full-time faculty in 1960 to 20% in 1989.



**Chart A Women remain a minority among university teachers.\***

Source: *Education, Culture and Tourism Division*

\* *The data were not collected in 1961-62, 1964-65 and 1966-67*



## Chart B **Female faculty have increased at a fast pace.\***

Source: *Education, Culture and Tourism Division*

\* *The data were not collected in 1961-62, 1964-65 and 1966-67*

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Furthermore, women account for a substantial proportion of new faculty members. In 1989, 35% of newly hired teachers were women, and since 1980, the female share of appointments has been at least 27%. [\(3\)](#)

## Concentration in specific fields

Women teaching at Canada's universities tend to be concentrated in certain fields. For the last 20 years, four fields - humanities, health, education, and social sciences - have accounted for approximately 80% of all female faculty. (During the 1960s, agriculture and biological sciences, not the social sciences, was among the top four fields for female staff.) By contrast, even in 1989, only 1% of all female faculty were in engineering and applied sciences, and fewer than 5% were in mathematics and physical sciences.

Moreover, women remain a minority in all fields, constituting fewer than a third of the full-time teachers in any faculty ([Chart C](#)). In 1989, education had the largest proportion of women at 30%, followed by fine and applied arts at 27%, and health at 26%. The lowest female representation was in engineering and applied sciences (3%) and in mathematics and physical sciences (7%).



## Chart C **Even in their traditional fields, women accounted for less than a third of faculty in 1989.**

Source: *Education, Culture and Tourism Division*

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## Few at higher ranks

At successively higher academic ranks, the proportion of female faculty declines ([Chart D](#)). In 1989, just

7% of all full professors, but half of lecturers and instructors, were women. Both figures, however, were up from 1960 when women had accounted for 4% of full professors and fewer than a quarter of lecturers and instructors.



## **Chart D Women's representation tends to declined at higher academic ranks.**

*Source: Education, Culture and Tourism Division*

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The concentration of women at lower ranks is most pronounced in male-dominated fields. For instance, in engineering and applied sciences, women made up fewer than 1% of full professors, but 15% of lecturers and instructors. Yet even in education, the faculty with the highest proportion of female staff, only 15% of full professors were women versus 61% of lecturers and instructors.

Women's relatively low representation among full professors may, to some extent, reflect the time required to attain full professor status, since only recently have substantial numbers of women joined university faculties. And in fact, over the last two decades, there has been an increase in the proportion of women at higher academic ranks. Between 1970 and 1989, the percentage of all female teachers holding full professorships almost tripled from 5% to 13%. At the same time, the percentage of male faculty at this level rose from 22% to 42%. As well, an increase of women at the associate professor level has meant that their proportional representation at this rank nearly equals that of men. By 1989, 33% of female faculty were associate professors, up from 17% two decades earlier; the comparable increase for men was from 28% to 35%.

## **Qualifications**

The academic credentials of university faculty members in general have risen over the past 30 years. In part, this is a result of growing competition for teaching positions. The percentage of women with doctorates, however, is markedly lower than the corresponding figure for men: in 1989, 52% of women teaching at the university level held PhDs, compared with 71% of men ([Chart E](#)).



## **Chart E Female faculty were less likely than male faculty to have PhDs or to be full professors in 1989.**

Source: *Education, Culture and Tourism Division*

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To a large extent, this discrepancy reflects differences in academic rank. In fact, the qualification gap between women and men is much narrower at each rank than the overall proportions suggest. For instance, in 1989, 80% of women who were full professors had doctorates, compared with 82% of their male counterparts. At the associate professor level, the corresponding percentages were 63% and 71%. [\(4\)](#)

Over the past 20 years, a rising proportion of university teachers with doctorates have been employed at the higher academic ranks. Even so, the share of female faculty with PhDs who are full professors is well below the figure for men. By 1989, 21% of female faculty with doctorates were full professors, whereas half of male teachers with PhDs were employed at that level ([Chart E](#)).

However, several factors not considered here should be taken into account for a more complete picture of upward mobility. For instance, only recently have substantial numbers of women joined university faculties. The seemingly slow advancement of women overall may reflect these recruits' lack of seniority. As well, women tend to have discontinuous and interrupted work histories during their childbearing years, which might affect their experience and opportunities for promotion.

## Earnings comparable

The concentration of women at lower ranks explains most of the gender variations in earnings, as university salaries are scaled according to rank. In 1989, the median salary of female faculty overall was just under 80% of what their male counterparts received.

Again, most of this difference disappears when teachers of equal rank in the same field are compared. For example, in 1989, the earnings of female full professors in agriculture and biological sciences were 98% of the earnings of their male colleagues. The lowest ratio for full professors (93%) was in health, a faculty with a relatively high representation of women. [\(5\)](#) In education, the ratio was 95%, the same as full professors overall.

The lower earnings of women, even at the same academic rank and in the same field as men, may be attributable to lack of experience and seniority, factors which are not explored here. Nonetheless, compared with the much larger male-female earnings differential in the general labour force, the gap in academia is minuscule. [\(6\)](#)

## Female teachers younger

Female faculty members tend to be younger than their male colleagues. In 1989, the median age of university teachers was 43 for women and 47 for men. The youngest women were in engineering and

applied sciences, with a median age of 38, compared with 48 for men. Women teaching mathematics and physical sciences were also relatively young, with a median age of 41; the corresponding age for men was 48.

On the other hand, in fields that have been more traditional choices for women, female faculty were older. For instance, the median age of women teaching education or humanities was 45. Even so, they tended to be younger than the men in these fields, whose median ages were 49 and 50, respectively.

Thus, female university teachers are less likely than men to be approaching retirement. In 1989, 13% of female faculty were aged 55 or older, compared with 23% of male faculty ([Chart F](#)).



## **Chart F In 1989, a smaller share of female than male faculty were close to retirement.**

*Source: Education, Culture and Tourism Division*

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## **Summary**

Although women have made substantial inroads, they remain a minority among the faculty on Canadian university campuses. Despite changes that are slowly taking place, women are still concentrated at the lower ranks and in traditionally "female" fields. Their earnings are also slightly lower than those of their male colleagues, although this largely reflects uneven distributions by rank, and perhaps, factors such as seniority and experience.

However, women's potential for future upward mobility may be greater, because they tend to be younger than their male counterparts. These women may have opportunities for promotions as their male colleagues retire, especially in fields with the largest gender gaps in median age - engineering and applied sciences, and mathematics and physical sciences. On the other hand, given the recent financial constraints imposed on universities, substantial progress for women at the upper ranks may be limited. The outlook for female faculty may depend not only on their qualifications and experience, but also on such external factors.

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## **Growing pool of female PhDs**

A rising proportion of doctorates are being awarded to women. In 1990, women earned 32% of all doctoral degrees, up from 23% in 1980, and 9% in 1970.

Women's representation among PhD recipients varies in different fields of study. Over half of PhDs granted in education in 1990 went to women. As well, they earned around 40% of doctorates in social sciences, humanities, fine and applied arts, and health. But even in 1990, women accounted for relatively small proportions of doctoral degrees in engineering and applied sciences (7%) and mathematics and physical sciences (20%). Nonetheless, these figures were up from 3% and 8%, respectively, in 1980.

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## Major occupational destination

University teaching is the leading occupation for people with doctoral degrees. According to the 1986 Census, about a third of the population with doctorates reported their main occupation to be university teaching. Men with PhDs (35%) were slightly more likely to be university teachers than women with similar qualifications (31%).

A national survey of graduates indicates that the predominance of university teaching is even greater among recent PhD recipients. By 1988, 42% of people who had earned doctoral degrees two years earlier were teaching at university. Again, the proportion of male graduates in this occupation (45%) exceeded the proportion of female graduates (38%).

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## Data source and definitions

### Data source

The Education, Culture and Tourism Division of Statistics Canada obtains annual information on full-time university teachers from the administrative records of Canadian degree-granting institutions. The database contains demographic, education program, and salary information.

### Population

Teachers include all academic staff who are teaching or performing administrative duties. Also included

are senior administrators, academic staff in teaching hospitals, and visiting academic staff. Presidents and vice-presidents are excluded. This study analyses only full-time teachers: academic staff and senior administrators (including those on sabbatical leave) who are contracted on a full-time basis ("full load") and whose term of appointment is four months or more. Each university is responsible for determining which of its teachers are to be classified as having full workloads.

New faculty members are classified under new appointments. New appointments are not synonymous with new positions; they usually result from a combination of expansion and of positions that have become open due to attrition.

## Rank

The following categories are used to designate different levels of academic appointment: full professor, associate professor, assistant professor, and lecturer or instructor. Staff ranked two levels below assistant professor and ungraded staff are grouped together in the "other" category. Visiting staff are distributed according to their appropriate ranks.

## Salaries

Only teachers paid according to regular salary scales are included in the earnings analysis. This group excludes those on leave without pay and certain staff in denominational institutions, but includes teachers on sabbatical leave.

Salary figures are based on annual rates of pay. These data include additional payments for administrative functions and other types of honoraria, but exclude such items as employee benefits, overtime pay, and compensation for extension courses. Salaries of individuals who were employed full time, but for less than 12 months, have been adjusted to an annual rate. For staff on sabbatical leave, the annual rate of pay is the salary they would have received had they been teaching.

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## Notes

### *Note 1*

Historical data are not available for part-time university faculty. However, in 1990, the Education, Culture and Tourism Division of Statistics Canada began collecting information on part-time as well as full-time university teachers.

### *Note 2*

Dates refer to academic years. For example, 1989 figures pertain to the 1989-90 academic year.

### **Note 3**

Appointments refer to faculty members "new" to a specific university; previously, they might have held a position at another university.

### **Note 4**

The low proportion of female associate professors with doctorates largely reflects the qualifications of teachers in health and in fine and applied arts, many of whom do not have PhDs. Health, in particular, accounts for a relatively large share of female associate professors: 22% in 1989.

### **Note 5**

To some extent, this difference may be a result of the particular health disciplines taught by female versus male faculty members: for example, physiotherapy or nursing as opposed to medical specialties.

### **Note 6**

In 1989, the female-male earnings ratio for full-year, full-time workers was 66%.

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## **References**

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- ---. *Universities: enrolment and degrees, 1990*, Annual, Catalogue 81-204. Ottawa, April 1992.
- ---. *Earnings of men and women, 1990*, Annual, Catalogue 13-217. Ottawa, January 1992.
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- ----. *Universities: enrolment and degrees, 1980*, Annual, Catalogue 81-204. Ottawa, May 1983.

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## **Author**

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## **Source**



*Perspectives on Labour and Income*, Spring 1993, Vol. 5, No. 1 (Statistics Canada, Catalogue 75-001E).  
This is the third of six articles in the issue.

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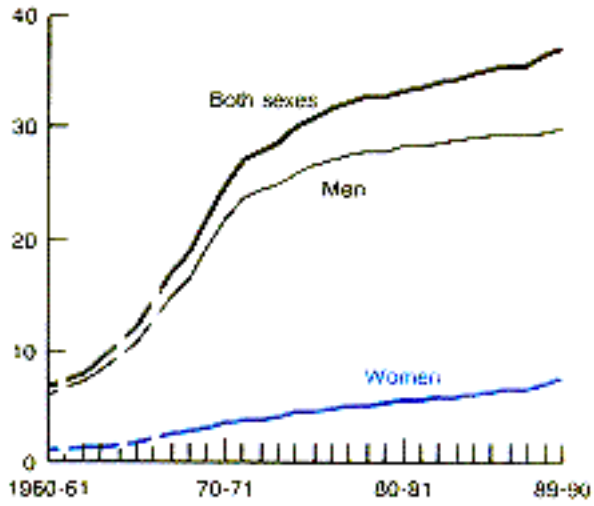
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Chart A

**Women remain a minority among university teachers. \***

Number of full-time teachers ('000)

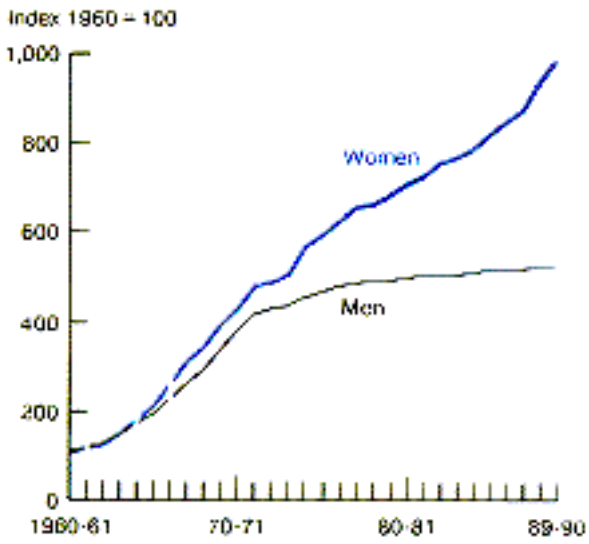


Source: Education, Culture and Tourism Division

\* The data were not collected in 1961-62, 1964-65 and 1966-67.

Chart B

**Female faculty have increased at a fast pace. \***



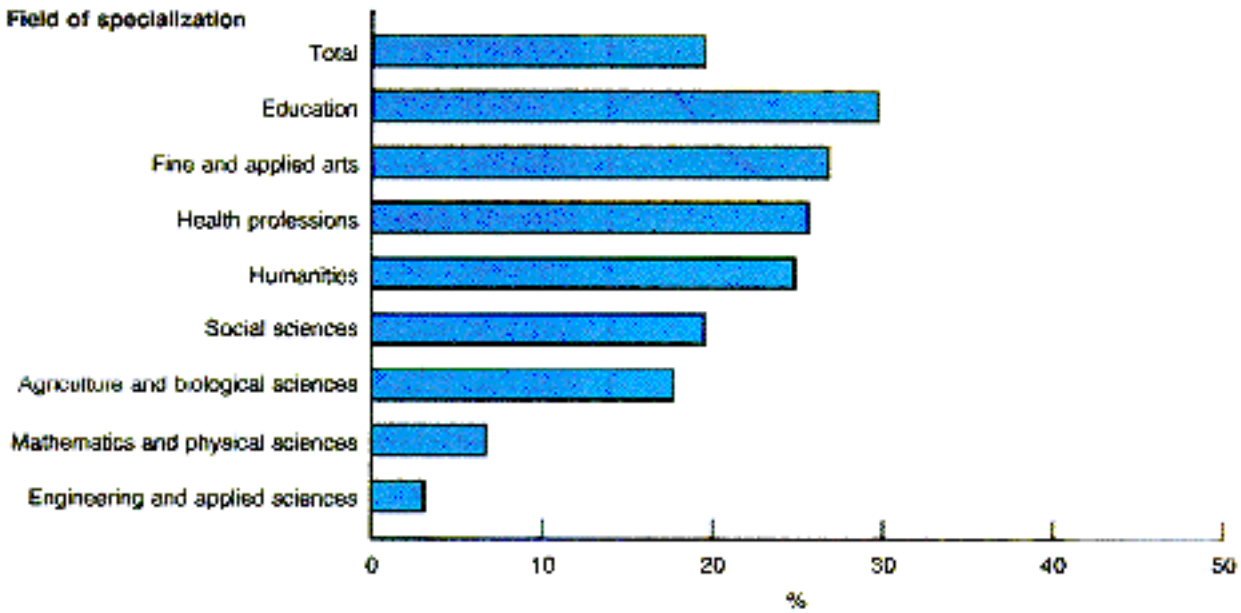
Source: Education, Culture and Tourism Division

\* The data were not collected in 1961-62, 1964-65 and 1966-67.

**Chart C**

**Even In their traditional fields, women accounted for less than a third of faculty in 1989.**

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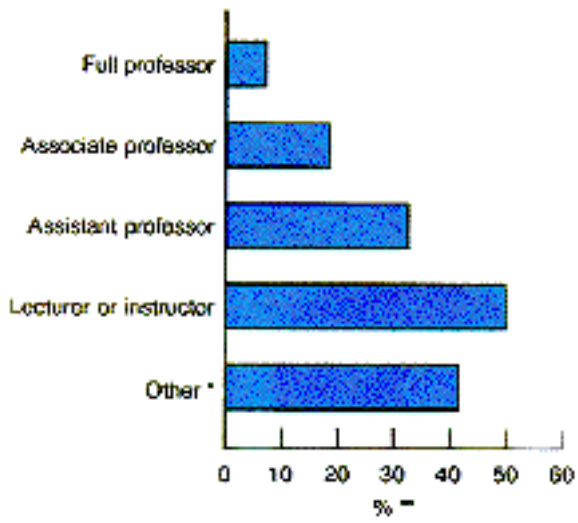
Source: Education, Culture and Tourism Division

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Chart D

**Women's representation tends to decline at higher academic ranks.**

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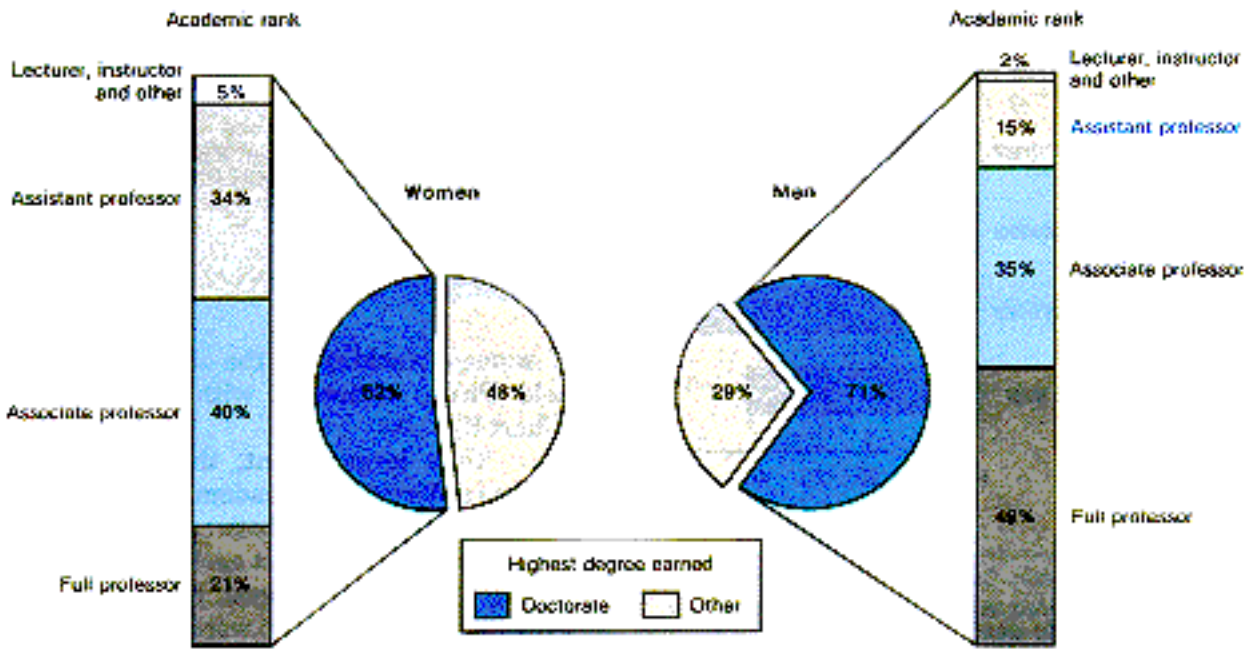
Source: Education, Culture and Tourism Division

\* Staff ranked two levels below assistant professor, and ungraded staff.

<sup>m</sup> Percentage of faculty accounted for by women in 1989.

### Chart E

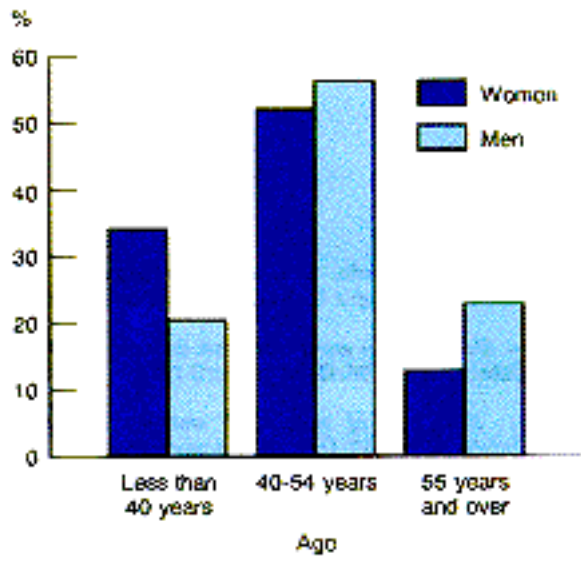
**Female faculty were less likely than male faculty to have PhDs or to be full professors in 1989.**



Source: Education, Culture and Tourism Division

Chart F

**In 1989, a smaller share of female than male faculty were close to retirement.**



Source: Education, Culture and Tourism Division