

PREPARING FOR A CAREER AS A SURVEY STATISTICIAN (AT STATISTICS CANADA)

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ABSTRACT

Statistics Canada is one of the largest employers of statisticians in the country. As such, it has a vested interest in the training of statisticians, particularly in Canadian universities. In these remarks, we present some of the more salient attributes that are deemed important when recruiting statisticians to work at Statistics Canada and how students and university faculty can help students acquire the appropriate skills. Many of these skills are sought by all employers of statisticians, not just Statistics Canada.

RÉSUMÉ

Statistics Canada is one of the largest employers of statisticians in the country. As such, it has a vested interest in the training of statisticians, particularly in Canadian universities. In these remarks, we present some of the more salient attributes that are deemed important when recruiting statisticians to work at Statistics Canada and how students and university faculty can help students acquire the appropriate skills. Many of these skills are sought by all employers of statisticians, not just Statistics Canada.

1. INTRODUCTION

I would like to thank Karla Nobrega, Patricia Whitridge, the Survey Methods Section and the organizers of the Statistical Society of Canada (SSC) for inviting me to provide some remarks at this panel discussion on Preparing for a Career as a Survey Statistician. As most of us know, there is an increasing shortage of statisticians in Canada and around the world. Statistics Canada, one of the largest employers of statisticians, has a vested interest in the nature of the university training and experience the students receive. Over the past few years, we have hired approximately 15-35 graduates annually to work in the application of statistical methodology and we expect to continue to need new recruits in the future.

The recruitment process at Statistics Canada is guided by the rules of the Public Service Commission of Canada, and aims to provide equitable access to employment across Canada. The process is open to all residents of Canada. In order to be considered part of the post-secondary recruitment campaign, applications must be submitted before the deadline, usually early in October. Recently, due to the shortage of suitably qualified candidates, we have made offers of employment to everyone who qualified in this process.

For more information on Statistics Canada's post-secondary recruitment program for statisticians and other occupational groups, refer to the Statistics Canada website¹.

Survey methodologists at Statistics Canada participate in the design, development, processing, evaluation, and analysis of surveys of people and businesses on many social and economic aspects of Canada. Examples of the types of surveys we conduct are the labour force and other employment surveys, various agriculture, retail trade, health, manufacturing and income and expenditure surveys. We also conduct the Census of Population and the Census of Agriculture and work extensively with administrative data (e.g., tax data). There are many excellent opportunities for varied work experiences and professional development on the job. Most of the work involves providing survey methodological services in support of specific surveys; however, there is also some opportunity to conduct research in appropriate statistical methods, and to participate in the development of corporate standards as they relate to survey methodology. To get some idea of the nature of the work involved, I suggest consulting the Quality Guidelines on Statistics Canada website².

Methodologists also develop and deliver courses in

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various aspects of survey methodology. In terms of receiving further training, there are many courses offered by the employer, as well as undergraduate and graduate courses in many disciplines offered at the post-secondary institutions in the Ottawa-Hull area.

2. WHAT ABILITIES AND SKILLS?

Even though survey methodologists work mostly with applied statistics, it is important that the graduates we hire have a solid foundation in statistical theory. Although knowledge of sampling theory is not essential, it is an asset. In addition to this theoretical base, we are looking for candidates who can deal with large and complex data sets in a creative way. Basic computer skills such as working in SAS are also an asset. Methodologists need to work with practical problems where the objectives are often not clearly spelled out. Communication skills are very important, including the ability to make presentations and to write clearly.

3. WHAT TO DO AS A STUDENT?

Many of the skills that we are looking for are sought by most employers of statisticians. This is why it is important to acquire these skills while enrolled as a student. I now would like to make a few suggestions for what students should do to prepare for a career in statistics.

Firstly, and most obviously, students should take as many courses as possible in statistics. In addition, computer courses and courses that help develop a broad general knowledge are very useful. While taking these courses, the student should ensure that he or she is challenged, often by doing more than what is necessary to fulfill the course requirements. An important skill to develop is how to read the statistical literature. For Statistics Canada's purposes, a good starting point is *Survey Methodology*, and the Proceedings of the Survey Methods Section of the SSC and of the Joint Statistical Meetings. I would also highly recommend taking workshops to improve written communication skills.

If possible, co-op or summer employment at Statistics Canada or with some other suitable employer can be very beneficial.

4. WHAT TO DO AS A FACULTY MEMBER?

Finally, I would like to make a few suggestions to those involved in teaching courses to future applied statisticians. During the lectures, a distinction should be drawn between small classroom examples, used mainly for pedagogical purposes, and practical problems. Students should be exposed to some of the challenges facing practising survey statisticians, such as nonresponse, response and processing errors, quality assurance, and so on. Issues such as privacy and confidentiality should be discussed. The use of statistical software packages should be encouraged.

Guest invited, either as part of a course or for a seminar, and students should be encouraged to attend. To help hone the students' writing skills, professors should assign projects that require preparing a written report.

5. CONCLUSION

Given the increasing market for statisticians in today's complex workplace, it is important that students acquire the right skills to prepare for their career. Both students and faculty need to actively ensure that such skills are being developed. Hopefully, these remarks will help encourage the training and development of a new generation of highly qualified and skilled statisticians who will work in an exciting and challenging work environment. I have given here my own perspective on how to achieve this, based mostly on my own experiences at Statistics Canada.

ACKNOWLEDGMENTS

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NOTES

1. Website for information on post-secondary recruitment:

<http://www.statcan.ca/english/employment/recruitment.htm>
http://www.statcan.ca/francais/employment/recruitment_f.htm

2: Website for Quality Guidelines:

<http://www.statcan.ca/english/IPS/Data/12-539-XIE.htm>
<http://www.statcan.ca/francais/IPS/Data/12-539-XIF.htm>