

# Statistics an attractive option for mathematics students

by

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*"From the time I was a little boy until my senior year in college I wanted to be a mathematician. Then I learned that I really wanted to be ... the kind who does a little theory, a lot of computation, and some consulting with real scientists. The field of statistics has allowed me to do all three things, in whatever proportions I desired."*

I think the above remark by Professor Bradley Efron, one of the most prominent statisticians and most highly cited mathematical scientists of our time, reflects the sentiments of many mathematics students. I certainly thought that way when I was an undergraduate. In fact, I started out majoring in mathematics at Rutgers University and the subject that I found most interesting at that time was topology. My first acquaintance with statistics came when I studied on my own to prepare for two actuarial examinations. To my pleasant surprise, I found statistics very interesting. As someone who liked the beauty of mathematics but who also wanted to do something useful and to have good employment prospects, I decided to switch from mathematics to statistics for my PhD study. This is not to say that mathematics is not useful. In fact, Professor Keith Worsley at McGill University makes heavy use of the Euler characteristic in the statistical analysis of brain imaging data and so a good knowledge in algebraic topology, which was my first love, would not go amiss. Incidentally, Professor Efron whom I cited earlier was then chair of statistics at Stanford University and he was influential in persuading me to choose Stanford over other universities which also made me offers. I have never looked back since the switch (from mathematics to statistics) and as time went on, I realized that statistics is more than just a mathematical subject. What fascinates and intrigues me most about statistics is the use of statistical thinking to make sense out of data too complex for the naked eyes. In a way, statistics is as much an art as a science.

Assuming that your interest has been aroused to consider studying statistics in the university, the next question is, where should I pursue my study? The Department of Statistics and Applied Probability (DSAP) at the National University of Singapore (NUS) is Singapore's major centre of statistical teaching and research. It is the only department in Singapore that offers degree programs at both the undergraduate and graduate levels. It offers a broader range of statistics courses than any other institution in Singapore. With close to thirty research active faculty members, it is not only the biggest in Singapore, but also one of the biggest statistics departments in the world, and a highly reputable one by international standards. Among our faculty are winners of best teaching and researcher awards, fellows of the Institute of Mathematical Statistics and the American Statistical Association, associate editors for various top journals, former and current office bearers, even presidents, of major international statistical organizations, and external examiner for a university in Hong Kong.

## **Bradley Efron**

- Recipient of National Medal of Science, U.S.A.
- Fellow of National Academy of Science, U.S.A.
- Max H. Stein Professor of Humanities and Sciences
- Professor of Statistics Stanford University

<http://www-stat.stanford.edu/brochure/part2.html>

DSAP offers three undergraduate degree programs. Students are provided with the flexibility and experience necessary to meet their individual academic goals. The major in statistics program offers students with a comprehensive knowledge of both theoretical and applied statistics and will enable students to move easily into challenging employment or graduate studies in statistics.

The major in statistics with specialization in biostatistics program prepares students to pursue a career in medical and life science research. The major in finance and business statistics program offers training to students who want to work or do research in the finance and business sector. Students intending to do any of the three major in statistics programs should have a pass in A-level mathematics or equivalent.

The "second major" in statistics program is offered to students who major in other disciplines. It provides a broad coverage of statistics knowledge but is slightly less demanding than the three major in statistics programs in terms of the number of statistics modules required. It helps students to find synergy between statistics and their respective majors. DSAP also offers a minor in statistics program to students majoring in another discipline. It provides students with a solid foundation in statistics.

At the graduate level, DSAP offers three programs. These are the Master of Science program by course work, the Master of Science program by research and the Doctor of Philosophy program by research.

The MSc program by course work is designed to equip students with an excellent knowledge of statistical principles and methods required by practicing statisticians and focuses on developing skills in applied statistics.

This program is intended for students with a Bachelor's degree in related fields, and for professionals who are interested in applications in statistics.

In order to suit the schedules of people who are employed while attending school, classes are conducted in the evening.

The MSc program by research is designed to provide an excellent knowledge of statistics and training in research to students who intend to pursue a career in statistics either in the industry or academia. By successfully completing a number of required modules and a master thesis, the students will gain a thorough grounding in the theory and methods of statistics and ready to do research in their areas of interest.

The PhD program is designed to train and guide students for a research intensive career in the academia or industry. The aim is to train scholars who can do original innovative research in theory, methods, or applications.

In ending, let me say that almost all our students have found good employment after their study. Many of them find high-paid jobs in the finance and banking sector with Citibank, Barclays, and so on. Others work in the biomedical research area in places like Eli Lilly Systems Biology or the Clinical Trials and Epidemiology Research Unit locally, or the world famous M. D. Anderson Cancer Center overseas. Some have gone on to do postgraduate study at top universities like the University of Chicago, University of Wisconsin, Madison and The University of California at Berkeley, or for postdoctoral training in Australia and Europe. One of our graduates is currently a Senior Lecturer at the London School of Hygiene and Tropical Medicine. Two of our recent PhD graduates have just been appointed as Assistant Professors by Nanyang Technological University. So there are plenty of opportunities for statisticians to have an intellectually stimulating, highly satisfying and financially rewarding lifetime career.

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