

WHY TAKE THE SMS COURSE NOW?

Here are some possible reasons:

THE STATISTICAL SKILLS WOULD BE USEFUL FOR MY DEGREE

The Statistics Made Simple (SMS) course covers the foundation topics that you might have already met in your undergraduate training in statistics.

But many students tell us that they failed to grasp the topics well when they were first taught. They say, for example:

- "My statistics courses were too theoretical, so I did not understand them."
- "I didn't see the relevance of the course at the time, so I didn't concentrate enough."
- "The course was a long time ago and I have forgotten the ideas."
- "The course only used small or artificial datasets, which didn't prepare me for real work, where I had a lot of data to analyse."

I REALLY NEED A COURSE THAT STARTS MORE-OR-LESS AT THE BEGINNING

This course starts at an elementary level; however it does move at a "postgraduate pace". For many students, that is appropriate: you'll find that you need to spend only the recommended time of 4 to 6 hours per week on the coursework.

Other students may need more time to absorb the ideas. The self-study aspect of the course will allow you to allocate the time that you need. If you anticipate spending longer on the SMS work than recommended, please ensure you free up the time, and tell your supervisor that you will have less time for other aspects of your studies for the duration of the SMS course.

I AM FRIGHTENED OF STATISTICS. I NEED A COURSE THAT WILL GIVE ME CONFIDENCE

We hope this course will do that.

You will find very few formulae, and almost no theory in this course, and that is often what put people off. You should also see the relevance to work you will be doing before too long.

You might enjoy the course more if you don't expect too much from it. There is no "magic bullet" to enable you to learn statistics, and we are not trying to turn you into statisticians by giving you a single short course. All we are doing is giving you some of the basic concepts, so you have a solid base to use statistics, and to learn more of the subject – without always going back to the beginning - should you need it later.

MY SUPERVISOR SAID I MUST DO THE COURSE

That's a good reason, but it is not enough. It is good to have your supervisor's support, because they should then appreciate that you will need to devote some time to the statistics. Hence they will accept less from you on your other subjects while you are taking the course.

But you are doing the course for yourself, not for your supervisor. So please check, in addition, that you also would like to do the course now.

I CAN SEE THAT IT GIVES ME A VERY USEFUL “TRANSFERABLE SKILL”

If you are taking the course in the UK, then some of you will be funded using “Roberts’ money”. This results from a report of Sir Gareth Roberts in April 2002 on the supply of people with science and related skills.” For PhD students this contained the statement that:

“There are a range of factors that act to reduce the attractiveness of a PhD, including inadequate training – particularly in the more transferable skills – available during the PhD programme.

As a consequence, many employers do not initially pay those with PhDs any more than they would a new graduate, viewing the training (particularly in transferable skills) that PhD students receive as inadequate preparation for careers in business R&D.”

Having statistical skills, which includes being able to turn data into evidence, is needed in many subjects. This course is designed to give you confidence in statistics. It covers the basic concepts to the extent that you should have a solid foundation to use, and to be able to understand further statistical methods when needed. This is a good “transferable skill”.

WHY AVOID THE SMS COURSE NOW?

I ALREADY HAVE THESE BASIC SKILLS

That’s fine. This course is only for students who were not well taught as undergraduates. Or perhaps they were well taught, but did not concentrate at the time.

You may still need further statistics courses to support your research. This course is mainly so those further courses can cover specialised and more advanced topics, without always having to start assuming almost nothing.

I DON’T HAVE ENOUGH TIME JUST NOW

That’s a good reason for taking a future run of the course – not this one!

If you are working hard on your main subjects just now, then don’t be over-optimistic. We accept that statistics is not your favourite subject, but you will have to devote time and effort to the course. The ideas don’t go in by themselves.

Some people seem to think that if they go to enough statistics courses then, even without concentrating, something will stick. Usually it doesn’t! You will just continue to convince yourself that you “can’t do statistics”. So wait till you feel positive and are prepared to give the ideas a proper try. Then you might join those who have been pleasantly surprised by how much they have gained from the course and how useful they have found it. Some even enjoy it, for the first time in a statistics course!

I AM ONLY COLLECTING QUALITATIVE DATA

It depends partly how you define the term “qualitative data”. Sometimes qualitative data are scores (perhaps from “very bad” to “very good”), or sentences that you will code to see how frequently different responses were mentioned. This is called categorical data in the course. Analysing those types of data is all part of statistics.

If your research is just individual case studies and you are not trying to generalise from them to a larger “population” then you might not need this course.

But often the idea of “research” is to discover principles that apply more generally than just the cases you observed and, of course, even those who don’t need the ideas so much for their degree might still welcome the “transferable skills” when they look for a job.

IT IS TOO GENERAL. I NEED A COURSE THAT IS FOR MY SUBJECT AREA

You need both. The fundamental ideas of collecting, organising and then analysing the data are general. It is good to share your research with students who are doing a different subject, when you realise that you can discuss how each of you processes your data, because those ideas are the same.

Following this course it will be good if you have a more specialised course, or read books and papers in your subject area. This course aims to provide the basic ideas, so you have something to build on.

I KNOW ABSOLUTELY NOTHING ABOUT STATISTICS

Is that really true? If you really know nothing, then you must either

- a) Take the course but be prepared to devote quite a lot of time each week, and that should start now, even before the main course begins.
- b) Do some of the preparatory work now, perhaps partly using the electronic textbook, called CAST. Then take the next run of the course, when you have mastered a few ideas.
- c) Don’t take the course.

Here are two sorts of question, to see if you really know nothing. See if you can follow the ideas:

- a) If you take 3 tests and get marks 7, 8 and 10 each out of 20, could you get the average (both mean and median)? Compare with a friend who got 2, 8 and 15. Can you appreciate that the averages are the same, but the variability is different?
- b) You ask 200 people for their views about the food in an English restaurant and get the responses as follows:

<i>Category</i>	<i>Frequency</i>
Very bad	1
Bad	0
Middling	28
Good	140
Very good	31
Total	200

Could you get the percentages and draw a bar chart of these data? Can you see that there is one “odd” observation (just one person said “Very bad”) and that is making your data rather variable?

To understand the variability in the data, you need additional information about each person. Suppose that includes information about the nationality of each person and how many times they ate at the restaurant. You then find that 199 people were English, and the person who said it was very bad was French. He also never ate at the restaurant, but just knew that all English restaurants are very bad. (Ask some French friends and you will see this might be the case!) Then you could display the results divided by Nationality and that has helped you to understand some of the variability in the data.

Now, if you followed these ideas, then perhaps you will be able to cope with the course. If you are prepared to devote the time, then why not give it a try.

WHY MIGHT THIS STATISTICS COURSE BE DIFFERENT?

Some of you will be sceptical that you will ever master statistics. We need you to be optimistic, hopeful, and perhaps even confident that you will be OK this time.

So what’s different?

For many students as many as four things are different with this course.

YOU ARE DIFFERENT?

When you had your last statistics course you possibly started with little hope. Your friends confirmed that they were finding it difficult too. The course was (perhaps) over-theoretical. Your main aim was to pass the exam (rather than to learn the subject). And you were not clear why you needed it all anyway.

Since then you had to do an undergraduate project, where you needed some statistics and many of you are clear that you will need to be able to analyse data for this degree.

THE RESOURCES ARE DIFFERENT

Many of you will learn a new (perhaps your first) statistics package. This used to be a big deal and need a special course. Now all the statistics packages are in Windows, and you already know how to use other Windows packages. So it is easy.

We have a new electronic textbook on statistics, called CAST (Computer Assisted Statistics Teaching). That is partly for reading, but also for playing, and is more fun.

THE SUBJECT IS DIFFERENT

Statistics used to be a “bitty” subject and many people thought that most of statistics consisted of finding the appropriate hypothesis test for their data. There are many different tests, so there was a lot to learn.

Now the subject is more coherent. A modelling approach can be taught that permits all sorts of data to be analysed in roughly the same way. These analyses are fairly easy to do, because they are all within the statistical software. So the subject has become simpler to teach, and to learn.

THE METHOD OF TEACHING IS DIFFERENT

Earlier many statisticians thought you would not understand the analyses unless you saw the relevant formulae. So the courses had lots of theory.

We don't believe this is necessary.

We used to teach this course (Statistics made Simple) in 3 days in a face-to-face way and many students felt they had understood the ideas for the first time. Even then, we have spent more time to transform the notes and materials into this e-learning course than for any other course in our 25-year history.

So we hope you might even find it fun?!