

## AS Statistics

### Who is it for?

- Designed for users of statistics
- Ideal for students going on to further study or work in Business, Economics, Geography, Medicine, Psychology, Science etc.
- Can be done in year 13 once students have an idea of what they will do after A Level.

### How does it differ from the A Level Statistics modules?

- Z1 has the same content and examination as S1. Students who sit either of them can ask OCR to change the result to the other.
- Z2 and Z3 do not depend on knowledge of Pure Mathematics.
- Need to learn binomial expansion for Z1
- It is accessible to students with grade C at GCSE.

### What is in the modules?

#### Z2:

- Probability Models
- Poisson Distribution
- Normal Distribution
- Sample Data:
  - Estimation
  - Hypothesis Testing

#### Z3:

- Sampling
- Design of Experiments
- Estimation and Hypothesis Testing
- Correlation

### What about exams?

- Z1 available in January and June.
- Z2 and Z3 in June only.
- Z1 has 5 to 7 short questions in section A and two longer questions in section B. Each section in 36 marks.
- Z2 has 5 questions, each worth 13 to 16 marks.
- Z3 has 3 questions in section A (total 45 to 48 marks) and one in section B (24 to 27 marks)

### What support is available?

- Text book for AS Statistics
- Developing online resources (Z1 is done)
- We can tailor CPD to your needs.

## How to find our more

- Email or ring Stella Dudzic  
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## Sidney Tyrrell's Data page

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'They' say there is lots of data out there on the web, for teaching. That it exists may be true, but I have trouble finding it from time to time. I have therefore tried to put together a page which lists the various sources as helpfully as I can.

There are two approaches: topic and subject. If you have a topic which you want data to illustrate look under [Data Collections](#) as several of these have data sets listed by topic. Alternatively try the [CensusAt School](#) data which has been collected so that it contains useful and real data which can be used to illustrate practically any statistical method.

If, on the other hand, you have a subject for which you require data, read through the whole page to find the most appropriate link to follow. You may still find what you want under the Data Collections, which also list sets by subject, but the data is not likely to be up to date, which may not matter. Do not underestimate the power of [Google](#) either.

### UK Government data

If what you want is data collected by some arm of the government there are 3 places worth trying:

The [National Statistics data page](#) of the [Biz/ed](#) site, where you will find available data neatly listed; try their [TimeWeb](#) too for resources.

1. The [Latest Releases](#) list, which can also be accessed via the [National Statistics](#) home page. This is good for finding data which is released on a regular basis, e.g. the RPI.
2. The [Guide to Government Key Facts](#) page of Directgov. The most interesting links here are to the UK's Overseas territories.

The other [National Statistics](#) goldmine for data is [Neighbourhood Statistics](#), where you can view or download local area statistics for your ward or local authority on a wide range of subjects including population (the latest Census data), crime, health and housing. Try entering your postcode, and you will be surprised at the information available about your ward.

If it is the UK GDP you want for any years from 1086-2004, or US for that matter but not for so long, visit [How Much is That](#), which is part of the [Economic History Services](#) website. It includes population and GDP per capita as well; you just ask for the years you want and hey presto there's the data which you can copy into Excel.

Worth a separate mention is the [Department for the Environment, Food and Rural Affairs](#) which has some fascinating [statistics](#) including long time series relating to food. Click on N and then on National Food Survey in the index for a selection of Excel spreadsheets including household nutrient data from 1940 onwards, household consumption of selected foods from 1942 onwards,

and the even more amazing household food expenditure, consumption and nutrient intake from 1974 to 2000. Now you can see for yourself how our consumption of vegetables has dropped!

Under DEFRA's [Environmental Protection Pages](#) are an [e-Digest of Statistics](#). Click on the Key Facts menu for plentiful info and data about [Climate Change](#), [Air Quality](#), [Inland Water](#), [Coastal and marine waters](#), [Noise](#), [Waste and recycling](#), [Land](#) and [Wildlife](#). Each of these sections offers lists of downloadable tables. Don't forget to download [The Environment in Your Pocket 2007](#) - more than enough data for you.

The [Department for Transport](#) has a developing base of web resources including [data sets](#), with some data downloadable as Excel spreadsheets, an example being the [tables](#) from [Transport Trends 2007](#). [Communities and Local Government](#) has stats on [Housing](#), and [The Fire and Rescue Service](#). The latest crime figures for [England and Wales 2006/2007](#) are published by the [Home Office](#).

Since June 2007 we have a [Department for Children, Schools and Families \(DCSF\)](#) and a [Department for Innovation, Universities and Skills \(DIUS\)](#) but fortunately their statistics are kept on a [joint site](#) which is not very interesting but does give the latest releases of statistical information relating to the two Departments.

[The Health and Safety Executive](#) have a vast collection of frightening facts and figures, very helpfully presented with downloadable Excel sheets. So whether it is [working days](#) lost, [causes and kinds of disease](#), or [work related accident statistics](#) this is the place to visit.

### **CensusAtSchool.**

The [CensusAtSchool](#) project has some large samples of [data](#) from pupils who come from rural areas, urban areas, small towns and suburbs. The beauty of this data is that it is real and relevant, and has been carefully collected on a number of topics which maximises its usefulness in demonstrating practically anything you want to in basic statistics. There are now 7 stages of UK data, each covering slightly different topics. There are worksheets, and the site is a good source of ideas for analysis. Data is available from similar censuses in [Australia](#), [Canada](#), [New Zealand](#), [South Africa](#) and the [UK](#).

The Collection of Historical and Contemporary Census Data project website, [CHCC](#) for short, has teaching and learning materials for piloting using data from UK censuses prior to 2001. Follow the links from the home page.

### **Data collections**

There are a number of extremely useful sites which hold collections of data or links to collections of data, which are worth knowing about.

[DASL](#) is the well known Data and Story Library, which classifies its sets by [topic](#) and [method](#), e.g. there are data sets for almost everything from [Archaeology](#) (romano British pottery) to [Zoology](#) (management of mustang populations) and for [ANOVA](#) to [T tests](#). (I occasionally have difficulty downloading straight into Excel from DASL, and when this happens I save the data as a text file first, and then open that in Excel.)

[OzDaSL](#) is the Australian version of DASL with examples and data sets listed by topics, which are: [first course in statistics](#), covering all the basics; [Multiple regression and multifactor ANOVA](#), then [Nonlinear regression and generalised linear models](#); a section on [Time series](#) and finally

[More Advanced Methods](#). Two examples are the [activity of Dolphin groups](#) to illustrate the use of Contingency tables, and the tale of [a bar of soap](#) illustrating regression.

Now on a new website which provides speedier access is Professor Jane Watson's [Numeracy in the news](#), based in Tasmania, which provides data from newspaper articles with questions. Topics covered include [number](#), [data collection and sampling](#), [data representation](#), [chance and basic probability](#), [data reduction](#), and [inference](#).

The [Datasets](#) site of [Exploring Data](#) provides data for boxplots, regression, and graphical displays, amongst other things. If you have never seen [F.J. Anscombe's datasets](#), which he invented to demonstrate the importance of first looking at your data by plotting it before finding the correlation and line of regression, you should take 20 seconds to look at them now. Don't cheat. Look at the [data sets](#) first, and in particular at the summary stats at the bottom, and after that look at the [graphs](#).

[Chance data sets](#) are relatively few but include the [distribution of birthdays in the US for 1978](#) which is a surprisingly periodic time series - babies arrive Mondays to Fridays; [CEO Golf and Stock data](#) reporting a correlation between CEO's golf handicaps and performance of their companies' stock; [Baseball salaries](#) an example to show the difference between median and mean; and a [portrait of the US electorate](#) in 1996. There is also the [Gender Related Development Index for 1995](#) compiled by the United Nations based on life expectancy, literacy, and standard of living.

For the up to date figures, for which alas you will have to [build your own table](#), you need to visit the [United Nations Human Development Reports Statistics site](#) which provides not only information on human development in animated form but also carbon footprint information.

[WHOSIS](#), the World Health Statistical Information System, is a further rich source of global health statistics whether it is alcohol consumption or HIV/AIDS.

Chance also points out that historical stock prices are available at [Yahoo](#). You need to find the shorthand for the company first by asking for its stock price, then use the Research Tools links to obtain historical quotes. The Dow Jones data starts from Oct 1, 1928, S&P from Jan 3, 1950 and Nasdaq from Oct 11, 1984, and all go up to the present. The symbols for these are: ^DJI, ^SPC, and ^IXIC, respectively. At the bottom of your results page you are asked if you want to download your data in spreadsheet format.

[Robin Lock](#), at St Lawrence University has an amazing [page](#) of resources, including a list of useful data sites. Of particular note are the American [Journal of Statistics Education Data Archive](#) which provides the data linked to articles from the JSE, and the [Statistical Datasets](#), listed by topic, at the University of Massachusetts. There is a link to data for the useful book Handbook of Small Datasets by Hand, Lund, McConway, and Ostrowski, and indeed data sets for other well known books are available at the [University of California](#).

### **Other useful sources**

Brilliant [case studies in medicine](#) for A level students, and undergraduates, with downloadable data, come from the [RSS Centre for Statistical Education](#). I use them a lot for ChiSq and T tests. Incidentally if you are looking for medical examples, the online [BMJ](#), which is free, is an excellent source of inspiration, and they have an interesting collection of [statistical notes](#).

If you happen to be using SPSS, or want to find out how to use it, there is a [Guide](#) to SPSS v15 produced by the Government's Economic and Social Data Service which was updated in January 2008.

The rest is a rather random list of topics in alphabetical order, but I hope it may be helpful to some.

- American data: Robert Niles' brilliant [Finding Data on the Internet](#).
- British Hills, and the Munro's, that is facts about them, are downloadable from [Chris Crockers'](#) home page
- Climate Statistics: start with the [Climate Change](#) pages from Defra.
- Football: [Soccerbase](#) gives the results of fixtures for clubs from the 1890's to the present day;  
try the FA for [FA Cup winners, scores](#) etc,  
and [SoccerStats](#).
- [Hurricanes](#)
- Internet see Ofcom's 2008 report on [The Communications Market](#):
- Lotto, previously known as The National Lottery: visit the Merseyworld site for all the [results](#), and [detailed analysis](#)
- Olympics: [The International Olympics records](#) site, and the [Centre for Innovation in Maths Teaching](#) has all past results.
- [Tornadoes](#) has just that - info on Tornadoes.
- [UNESCO Institute of Statistics](#) provides world data on countries, education , [literacy and culture](#), including annual attendance at cinemas.
- The [Meteorological Office](#) has data for the past [30 days](#), and also offers [historical data](#) for certain weather stations, e.g. [Oxford](#) where there are monthly stats since 1853, and monthly [1961-1990 averages](#) for a large number of weather stations. They offer a variety of other [data](#) and resources as part of their [learning centre](#).
- World Population: Numerous statistics are in a fascinating report, [2007 World Population Data Sheet](#) produced by the [Population Reference Bureau](#)

### Time Series data sets

These data sets are some that I maintain; they all exhibit regular seasonal variations.  
Left click to display, right click to download.

<a href="#">airsea.xls</a>	<a href="#">Air and sea passengers Q1 1985 to Q4 2005 7 separate data sets in each of inward and outward.</a>
<a href="#">bmd.xls</a>	<a href="#">Births, Marriages and Deaths (total and under 1 year) for the UK. Q1 1988 to Q3 2005)</a>
<a href="#">fuels.xls</a>	<a href="#">Sales of Gas (domestic and total) and Electricity (commercial, domestic and total) Q1 1987 to Q3 2005</a>
<a href="#">rcasualt.xls</a>	<a href="#">Road casualties. 9 data sets Q2 1990 to Q4 2004.</a>

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