



Statistics 4 beginners

Course programme	
Trainer	Dr Rebecca Killick
Location	Valencia
Date and time	27 – 29 November 2018
Description	This course wishes to introduce non-statistical NSI staff to the basic concepts and logic of statistical reasoning and gives them introductory-level practical ability to choose, generate, and properly interpret appropriate statistical descriptive and inferential methods.
Tool for practical session	PCs with windows and standard utilities, including Excel.
1st day	27 November 2018
9.30-11.00 (including a 15min coffee break)	<ul style="list-style-type: none"> • What is statistics? • Descriptive statistics and data collection: <ul style="list-style-type: none"> - types of data; - differences between observational studies and experiments; - population and samples.
11.00-12.30	<ul style="list-style-type: none"> • Descriptive statistics: (cont.) <ul style="list-style-type: none"> - describing data with tables and graphs - frequency distributions for quantitative data; relative and cumulative frequency distributions; frequency tables for qualitative (nominal) data; - definition of average, median, mode and modal values;
12.30-14.00	Lunch break
14.00-15.30 (including a 15min coffee break)	<ul style="list-style-type: none"> • Describing variability: <ul style="list-style-type: none"> - Measures of variability: variance and standard error; - Calculation of variance and standard error;
15.30-17.00	<ul style="list-style-type: none"> • Describing variability: (cont.)

	<ul style="list-style-type: none"> - Interpretation, degrees of freedom; - Measures of variability for qualitative data; - Sampling variability.
2nd day	28 November 2018
9.30-11.00 (including a 15min coffee break)	<ul style="list-style-type: none"> • Statistical inference: <ul style="list-style-type: none"> • - introduction; • - fitting distributions to data; • - assessing the fit of a distribution.
11.00-12.30	<ul style="list-style-type: none"> • The Normal distribution and the standard Normal distribution: <ul style="list-style-type: none"> - Characteristics of the Normal curve - Calculations in the Normal Distribution - Testing for the Normal Distribution
12.30-14.00	Lunch break
14.00-15.30 (including a 15min coffee break)	<ul style="list-style-type: none"> • The importance of the Normal distribution: <ul style="list-style-type: none"> - Central Limit Theorem - Type of errors - Bias • Confidence intervals: <ul style="list-style-type: none"> - Basic properties of confidence intervals;
15.30-17.00	<ul style="list-style-type: none"> • Confidence intervals (cont.): <ul style="list-style-type: none"> - Confidence intervals for population mean; - Intervals based on a normal population distribution; - Confidence intervals for other estimates for example the variance and standard deviation
3rd day	29 November 2018
9.30-11.00 (including a 15min coffee break)	<ul style="list-style-type: none"> • Analysis of qualitative data <ul style="list-style-type: none"> - Inference for proportions - Confidence intervals
11.00-12.30	<ul style="list-style-type: none"> • Assessment of relationship: linear regression
12.30-14.00	Lunch break
14.00-15.30 (including a	<ul style="list-style-type: none"> • Roleplaying

15min coffee break)	<ul style="list-style-type: none"> - participants will listen and act out different scenarios and conversations about data and statistics, - listening participants will instruct the acting participants in how to change their conversations to highlight inaccuracies in constructive ways.
15.30-17.00	<ul style="list-style-type: none"> • Practical exercise to cement knowledge across the course with participants receiving different data sets • Groups will evaluate and mentor others with different data sets • Course evaluation and feedback from participants