**AS Level Statistics 1**

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|  | **What You Need To Know** | pe03020_[1] | pe03018_[1] | pe03019_[1] |
| 1. Numerical Measures
 | * Standard deviation and variance calculated on ungrouped and grouped data. Including knowledge of unbiased estimators and its effects on the divisor.
* Linear Scaling
* Choice of numerical measures (mean, median, mode, range and interquartile range) in appropriate contexts.
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| 1. Probability
 | * Elementary probability; the concept of a random event and its probability.
* Addition laws of probability and mutually exclusive events.
* Multiplication law of probability and conditional probability.
* Independent events.
* Application of probability laws.
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| 1. Binomial Distribution
 | * Discrete random variables
* Conditions of application of a binomial distribution
* Calculating the probabilities using formula.
* Calculating the probabilities using the tables
* Mean variance and standard deviation of a binomial distribution.
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| 1. Normal Distribution
 | * Continuous random variables.
* Properties of normal distributions. Looking at the shape, symmetry and area properties of normal graphs.
* Calculation of probabilities
* Mean variance and standard deviation of a normal distribution.
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| 1. Estimation
 | * Population and sample, including the terms ‘parameter’ and ‘statistic’
* Unbiased estimators of a population mean and variance.
* The sampling distribution of the mean of a random sample from a normal distribution.
* A normal distribution as an approximate to the sampling distribution of the mean of a large sample from any distribution. Including the Central Limit Theorem.
* Confidence intervals for the mean of a normal distribution with know variance.
* Confidence intervals for the mean of a distribution using normal approximation.
* Inferences from confidence intervals.
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| 1. Correlation and Regression
 | * Calculation and interpretation of the product moment correlation coefficient.
* Identification of response (dependant) and explanatory (independent) variable in regression.
* Calculating the least square regression lines with 1 explanatory variable. Scatter diagrams and drawing regressions lines thereon.
* Calculation of residuals using:

 $(residual)\_{1}=y\_{i}-a-bx\_{i}$To check model and identify outliers.* Linear Scaling
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