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| Variance | The expected value of the square of the deviation of a random variable X from its mean *µX*  Squared to remove any negative signs. If not square, sum of variances = 0.      Units:  Squared units (awkward) |
| Standard deviation | Square root of the variance.  Used to get the same units as the original data.  Units:  Same units as the random variable. |

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| Covariance | Variances of two random variables multiplied together.  + = variables increase/decrease together  - = variables move in opposite directions  0 = variables move independently  Big absolute values. |
| Correlation | Covariance divided by the square root of the variance (standard deviation) of each random variable.  Eliminates units.  -1 < Correlation < +1  If uncorrelated, Corr = 0.  Units: unitless |

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| Estimators    BLUE: Best linear unbiased estimator  = | **Bias:**  **Consistency:** Over many samples, probability that estimator is within a small interval of true value approaches 1.  **Efficiency:** Smallest variance – tight sampling distributions. |