The Basics

- Sources of data, data sampling, data accuracy, data completeness, simple representations, dealing with practical issues

Fundamental Statistics

- Mean, average, median, mode, rank, variance, covariance, standard deviation, "lies, more lies and statistics", compensations for small sample sizes, descriptive statistics, insensitive measures

Basics of Data Mining and Representation

- Single, two and multi-dimensional data visualisation, trend analysis, how to decide what it is that you want to see, box and whisker charts, common pitfalls and problems

Data Comparison

- Correlation analysis, the auto-correlation function, practical considerations of data set dimensionality, multivariate and non-linear correlation

Histograms and Frequency of Occurrence

- Histograms, Pareto analysis (sorted histogram), cumulative percentage analysis, the law of diminishing return, percentile analysis

Frequency Analysis

- The Fourier transform, periodic and a-periodic data, inverse transformation, practical implications of sample rate, dynamic range and amplitude resolution

Regression Analysis and Curve Fitting

- Linear and non-linear regression, order; best fit; minimum variance, maximum likelihood, least squares fits, curve fitting theory, linear, exponential and polynomial curve fits, predictive methods

Probability and Confidence

- Probability theory, properties of distributions, expected values, setting confidence limits, risk and uncertainty, ANOVA (Analysis of Variance)

Some More Advanced Ideas

- Pivot tables, the Data Analysis Tool Pack, internet-based analysis tools, macros, dynamic spreadsheets, sensitivity analysis