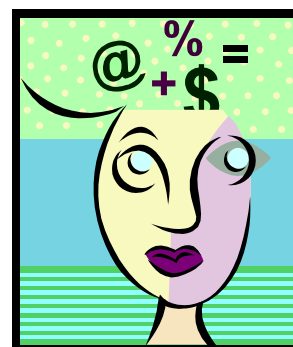


# STATISTICAL TOOLS FOR ANALYTICAL QUALITY ASSURANCE

This one-day course is designed for analysts who need an introduction to the statistical tools that will help them to ensure the quality of test results produced by their laboratory. The course gives instruction and practice in the use of statistical tools through presentations and worked exercises, and there is opportunity for discussion of their application in working laboratories.

The Statistical tools covered will enable delegates to make and compare estimates of the precision, accuracy and uncertainty of test methods, to construct control charts effectively and to detect outliers in their data.

Workbooks are provided that contain notes on the presentations, example exercises and answers and references to useful books and resources. Calculators can be provided if required.



SAVANT  
TECHNOLOGIES

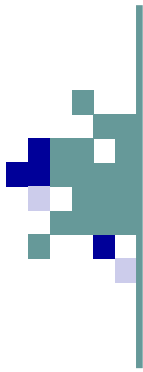
'Brynawel'  
Llanafan Road, Cilmerly  
Builth Wells  
Powys LD2 3PA  
United Kingdom

Leslie Coveney MSc C.Chem  
MRSC FIFST

Phone: 01982-551901  
Mobile: 07879-424543  
E-mail: l.coveney@savant-  
technologies.co.uk

Savant Technologies is a trading name of Cilmerly Fields Ltd, registered in England and Wales. Reg. No 6104399. Registered address as above.

**Services that  
matter. Benefits  
that count**



# STATISTICAL TOOLS FOR ANALYTICAL QUALITY ASSURANCE

## Course Content

### Definitions and Assumptions

- ◇ An introduction to populations, samples and distributions.
- ◇ What is meant by confidence or degrees of freedom?
- ◇ Using calculators, computers and statistical tables

### Accuracy

- ◇ What are accuracy, trueness or bias?
- ◇ How to estimate means and their confidence limits.
- ◇ Deciding whether apparent differences are real using significance tests.
- ◇ Estimating uncertainties by combining standard uncertainties
- ◇ The assumptions that must be made.

### Precision

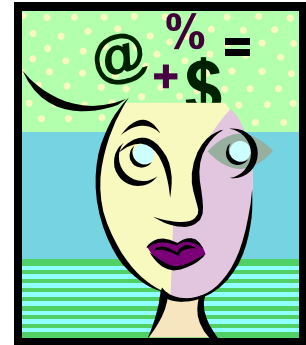
- ◇ Defining repeatability and reproducibility.
- ◇ Working with and comparing standard deviations
- ◇ How to make estimates of precision and of maximum expected differences between duplicates
- ◇ How to update precision estimates with additional data.
- ◇ The assumptions that must be made.

### Quality Control Charts

- ◇ What is a Shewart Chart?
- ◇ Monitoring precision and accuracy with control charts.
- ◇ How to calculate and update action limits
- ◇ Calculating initial action limits
- ◇ Updating action limits
- ◇ Interpreting control charts

### Outliers

- ◇ What is an outlier?
- ◇ Using Dixon's test to identify outliers.
- ◇ Using the median instead of the mean - 'robust statistics'.



PUBLIC COURSE TRAINING

CLOSED COURSE AND ON-SITE CLASSROOM TRAINING

SIDE BY SIDE TUITION

SPREADSHEET BASED TRAINING

DESIGN OF QUALITY ASSURANCE SYSTEMS

COMPUTER BASED SOLUTIONS

STATISTICAL CONSULTANCY

ADVANCED TOPICS ALSO AVAILABLE:

REGRESSION TECHNIQUES

ANALYSIS OF VARIANCE

ESTIMATION OF MEASUREMENT UNCERTAINTY

**Services that matter. Benefits that count**