**How It's Done**

The data for the samples of the ten holes on each of the three days is shown below along with the mean hole size of each sample. Using ANOVA you will be able to determine if there is a statistical difference among this data across the three different days.

|  |  |  |  |
| --- | --- | --- | --- |
|   | Monday | Wednesday | Friday |
|   | 1.497 | 1.506 | 1.530 |
|   | 1.492 | 1.513 | 1.528 |
|   | 1.513 | 1.501 | 1.519 |
|   | 1.498 | 1.511 | 1.519 |
|   | 1.483 | 1.522 | 1.531 |
|   | 1.511 | 1.500 | 1.514 |
|   | 1.508 | 1.510 | 1.515 |
|   | 1.487 | 1.496 | 1.522 |
|   | 1.485 | 1.508 | 1.517 |
|   | 1.493 | 1.514 | 1.530 |
| average | 1.497 | 1.508 | 1.523 |

Also [**download this Excel File**](http://cdad.tuiu.edu/Presentation.aspx?course=975&term=94&presentation=20230) which has sample spreadsheets showing the calculations.

In the PowerPoint, you will learn the following:

ANOVA analyses the variation in the data.

* There are three types of Variation that are calculated from the data:
	+ The Total Variation
	+ The Treatment Variation
	+ The Random Variation
* These Variations are used to make two estimates of the population variance of the data
* A number called the F-statistic is calculated and compared to a Test Value based on error from random sampling

The F-statistic is based on comparison of two standard deviations. In an ANOVA, that is what we are doing, comparing standard deviations.

You will learn how to develop an ANOVA table and see how it is done in EXCEL both manually and using the Excel ANOVA Data Tool.