Two Independent Sample Hypothesis Test for Poisson Counts

Data Science for Quality Management: Two Sample Hypothesis Testing

with **Wendy Martin**

Learning objective:

Perform a statistical test for differences in counts (independent groups)

Two Independent Sample Poisson Count (Rate) Test

- Underlying Assumptions:
  - The two processes from which the sample data are drawn are inherently independent in nature
  - The data are discrete counts that follow a Poisson distribution.

Poisson Rate Test Problem

- A team was interested in determining whether their activities involving cleanliness have made a difference in the (average) population rate (λ) of minor Eddy Current indications.

Poisson Rate Test Problem

- Based on the data collected by the team (in the file **Eddycur.dat**), can the team feel confident that their efforts have changed the number of minor indications per bar? Assume $\alpha = 0.05$.

Poisson Rate Test Problem

Test for the Poisson Distribution	`poisson.dist.test`
Two Sample Poisson Test	`poisson.test.twosample.simple`

Sources

- Luftig, J. An Introduction to Statistical Process Control & Capability. Luftig & Associates, Inc. Farmington Hills, MI, 1982