



# THE JMP WORKFLOW

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP

About 80% of JMP's capabilities can be unlocked by following this 4-step workflow.

1. Make a graph (remember sometimes, JMP does this for you!)
2. LOOK AT THE GRAPH!! (seriously – don't skip this step)
3. Ask questions about what you see.
4. Push the answer button (the Little Red Triangles)



# THE BOX PLOT

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP



Mary Eleanor Spear  
(1897-1986)

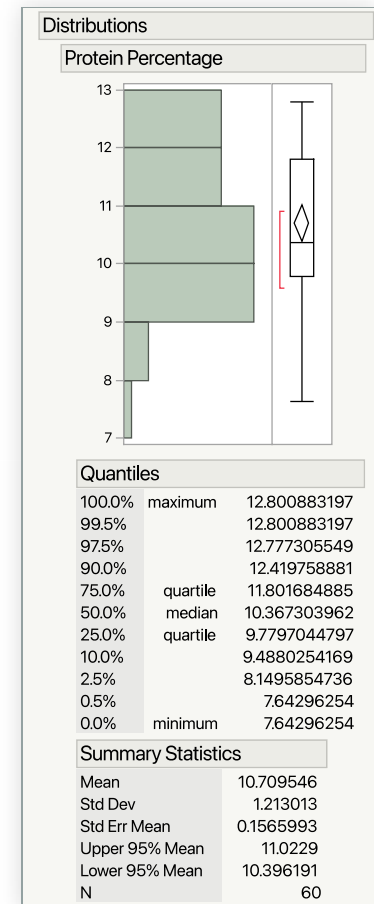
- Graphic Analyst for IRS and BLS
- Invented the box-plot in 1952
- Professor of Graphic Representation of Statistics at American University
- Wrote two of the foundational works on Data visualization:
  - Charting Statistics
  - Practical Charting Techniques



# THE BOX PLOT: WHERE TO LEARN MORE

## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP

- The **Distribution Platform** has more details around the same statistics that you can create in **Graph Builder**
- Note:
  - The box plot on the right of the histogram
  - The Quantiles Table
  - The Summary Statistics Table



# STUDENT'S T-TEST

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP



William Sealy Gosset  
(1876-1937)

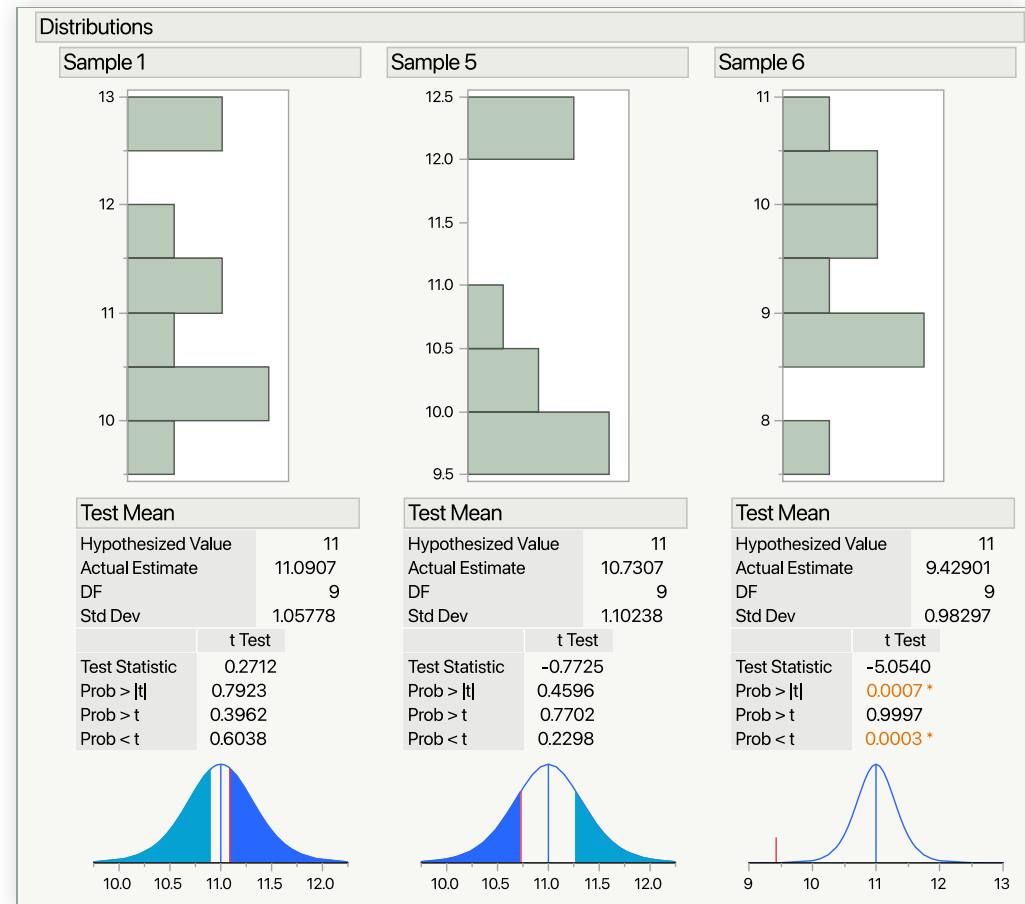
- Chief Experimental Brewer at Guinness Brewery
- Pioneer in Design of Experiments
- Collaborated with Karl Pearson and Ronald A. Fisher
- Published under the pseudonym “Student”
- Student’s t-Test, distribution, etc...
- Rediscovered the Poisson’s distribution



# STUDENT'S T-TEST: WHERE TO LEARN MORE

## PRODUCING AND INTERPRETING BASIC STATISTICS IN JMP

- The **Distribution Platform** has more details around the same statistics that you can create in **Graph Builder**
- **Red Triangle > Test Mean** to run a 1 sample t-test.



# COEFFICIENT OF CORRELATION

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP



Karl Pearson  
(1857-1936)

- Developed the Pearson's Correlation Coefficient (with contributions from Francis Galton and Auguste Bravais)
- Contributed to the fields of Biometrics and Meteorology
- A controversial figure



# COEFFICIENT OF CORRELATION: A COMMON QUESTION

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP

*Why is correlation under the density ellipse?*

- *Correlation* is not necessarily *causation*
  - $\text{corr}(x, y)$  **is not** the same as  $y = f(x)$
- We use ellipses to imply directionality (slope) and magnitude (elongation) without expressly declaring a factor-response relationship

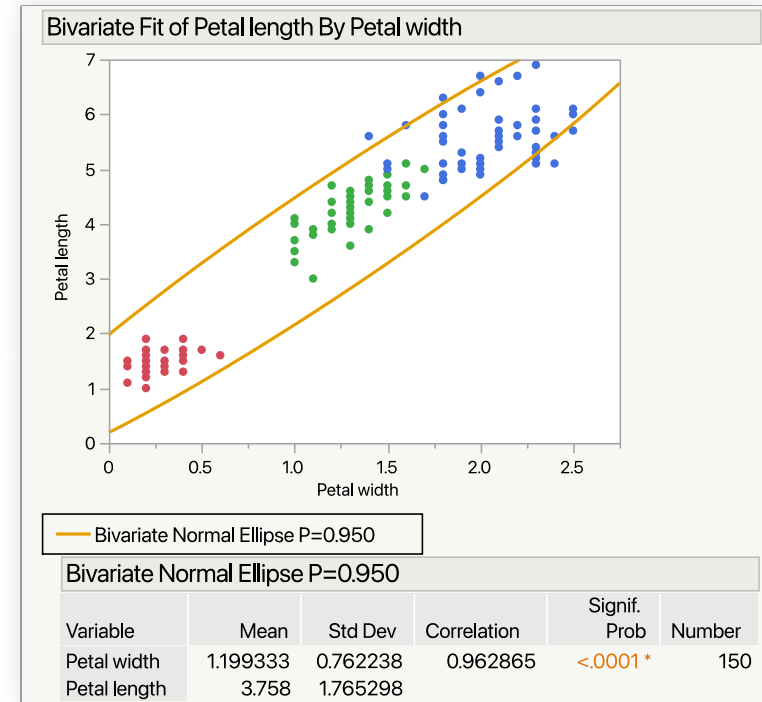




# COEFFICIENT OF CORRELATION: WHERE TO LEARN MORE

## PRODUCING AND INTERPRETING BASIC STATISTICS IN JMP

- The **Fit Y by X Platform** has more details around the same statistics that you can create in **Graph Builder**
- **Red Triangle > Summary Statistics** to obtain the correlation coefficient in a table with its 95% confidence interval
- **Red Triangle > Density Ellipse> 0.95** to obtain the correlation coefficient in a table with its 95% confidence interval



# FITTING LINES AND MODERN EDA

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## PRODUCING AND INTERPRETTING BASIC STATISTICS IN JMP



John W. Tukey  
(1915-2000)

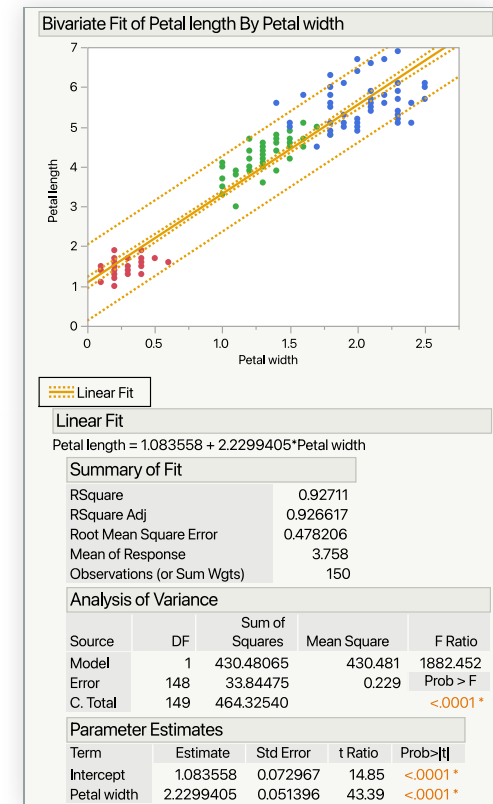
- Developed the FFT with James Cooley
- Developed the foundations of statistical computing at Bell Labs where he coined the term 'bit.'
- Tukey wrote the book on Exploratory Data Analysis (literally)
- Refined the concept of a Box plot
- Refined the pairwise t-test into the Tukey-HSD



# FITTING LINES AND MODERN EDA: WHERE TO LEARN MORE

## PRODUCING AND INTERPRETING BASIC STATISTICS IN JMP

- The **Fit Y by X** Platform has more details around the same statistics that you can create in **Graph Builder**
- **Red Triangle > Fit Line** to run a simple linear regression



*jmp*

