

A classroom of students
who love statistics.

What are the odds?

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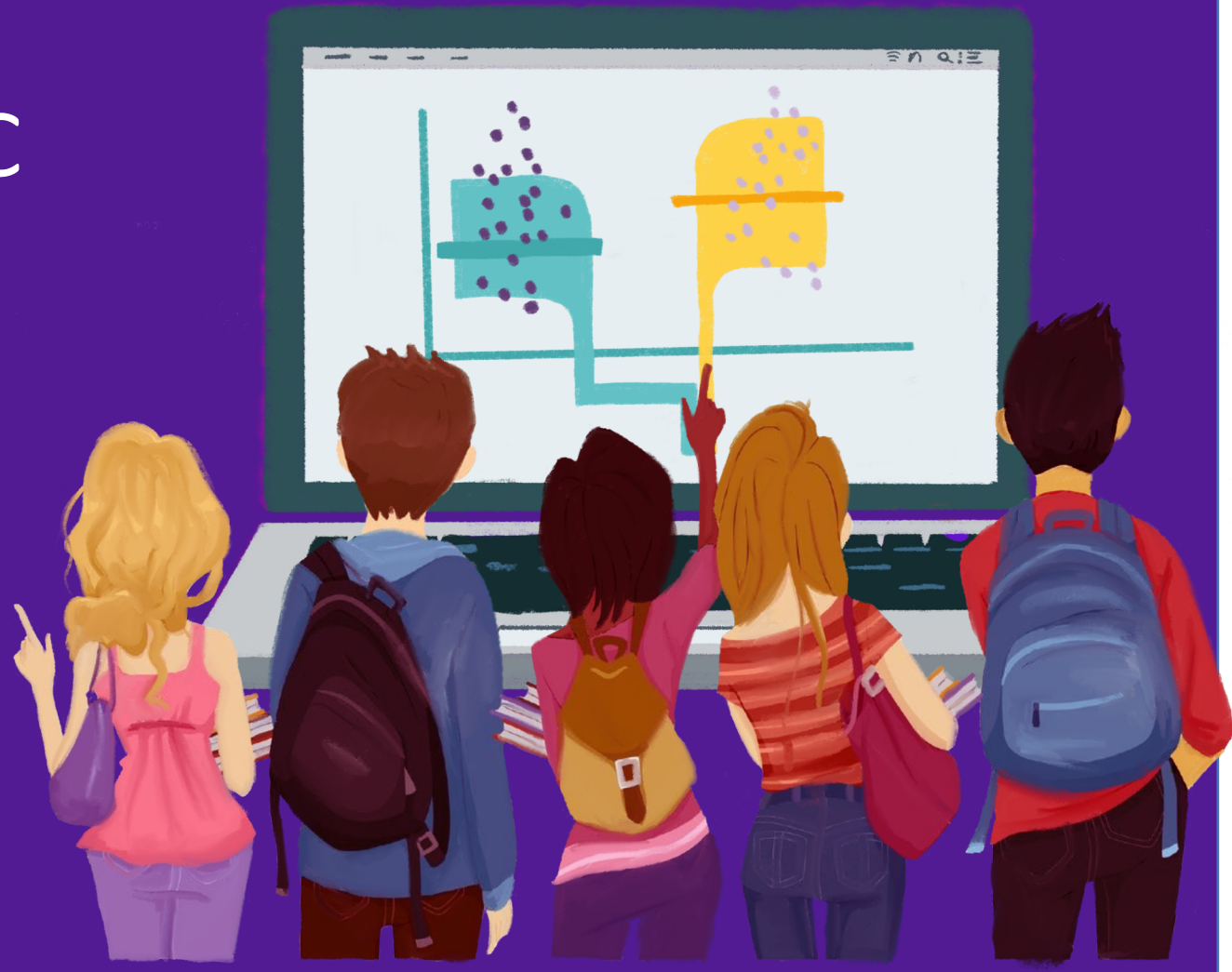


 Data
Classroom



DataClassroom is a web-app to teach data skills to the stats novice

DataClassroom will be available to all MNT-EC faculty and students through MNT-EC support.



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DataClassroom is a web-app to teach data skills to the stats novice

Problem: Data and stats tools aren't built for novices

Data analysis is among the hottest skills in the marketplace

11.5 million new data science jobs expected by 2026 (US Bureau of Labor Statistics).

...but, few data tools are a designed for a stats novice.

Many instructors get by using Excel or Google Sheets, but are frustrated with these tools for use in science. Stats in the command line (i.e. R, Python, etc) can be a good alternative, but demand dedicated time for learning curve.

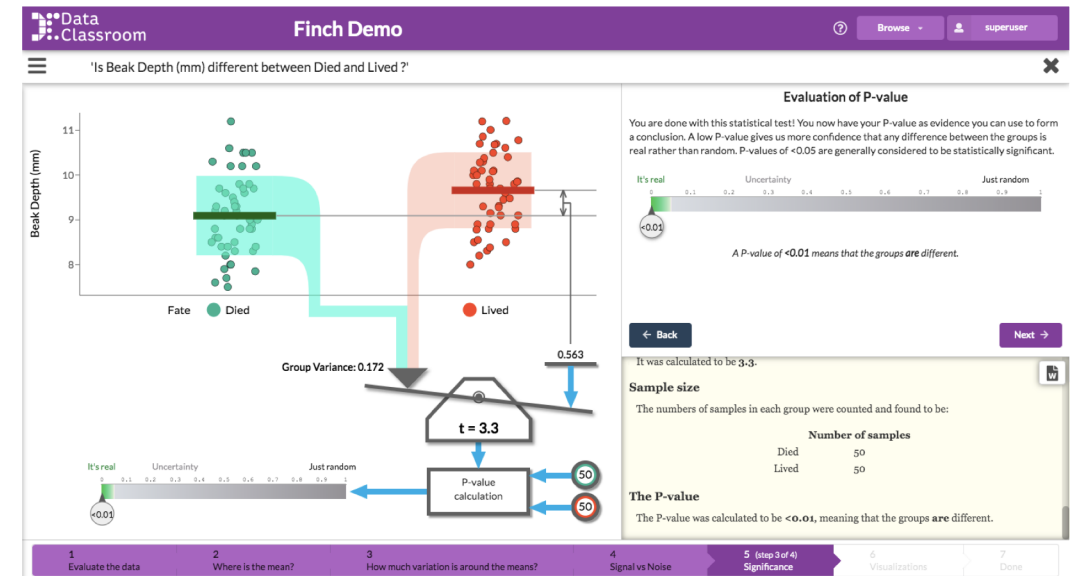
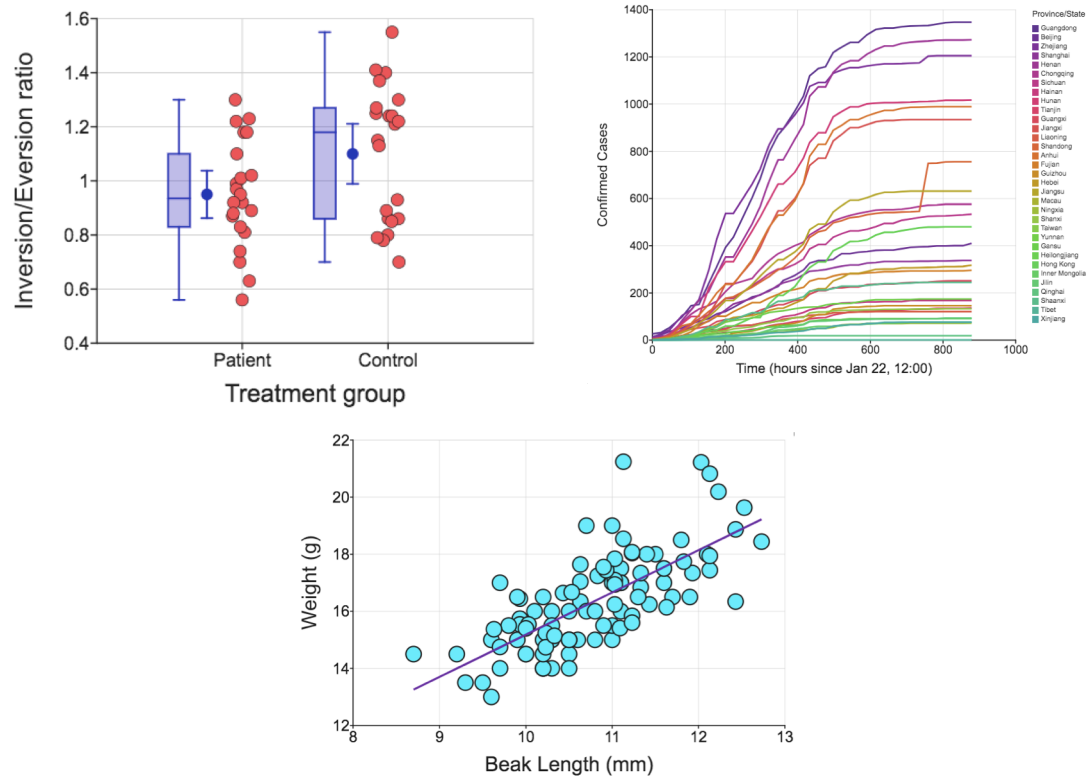


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Solution: Data Classroom web application

1) Creates beautiful graphs in seconds

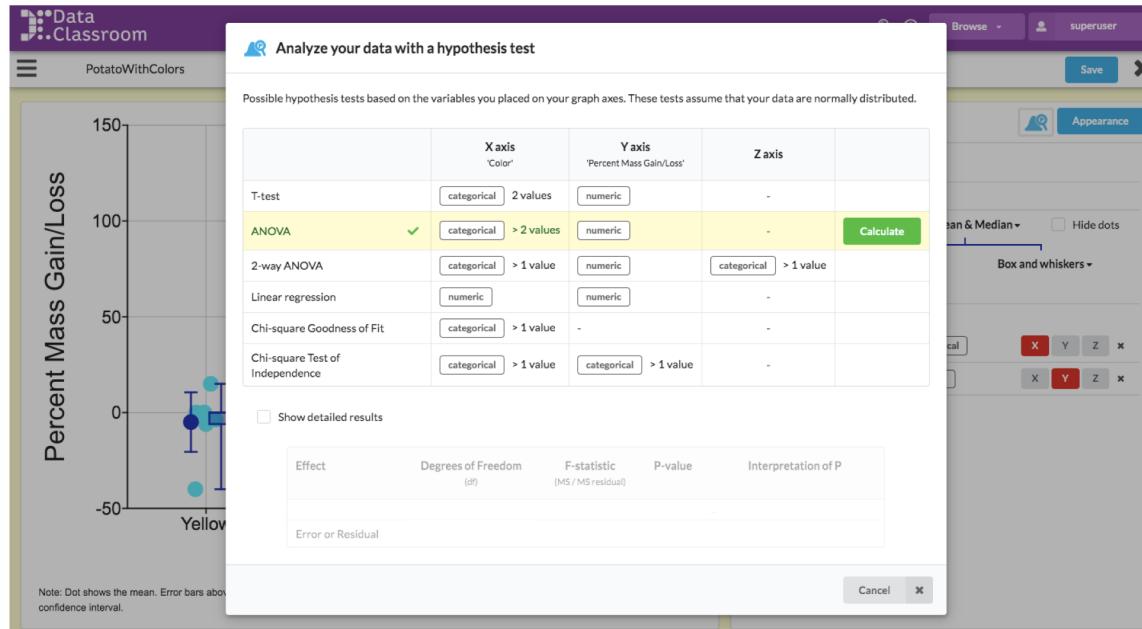
2) Explains the math of hypothesis testing with animation



See for yourself at DataClassroom.com

Solution: web application

3) Supports appropriate choice of statistical test for normal data



The screenshot displays the 'Data Classroom' web application interface. A modal dialog box titled 'Analyze your data with a hypothesis test' is open, allowing the user to select a statistical test based on the variables on their graph axes. The dialog box includes a table of possible tests and a 'Calculate' button.

Possible hypothesis tests based on the variables you placed on your graph axes. These tests assume that your data are normally distributed.

| | X axis 'Color' | Y axis 'Percent Mass Gain/Loss' | Z axis | |
|---------------------------------|---|--|--|--|
| T-test | <input type="text" value="categorical"/> 2 values | <input type="text" value="numeric"/> | - | |
| ANOVA | <input type="text" value="categorical"/> > 2 values | <input type="text" value="numeric"/> | - | <input type="button" value="Calculate"/> |
| 2-way ANOVA | <input type="text" value="categorical"/> > 1 value | <input type="text" value="numeric"/> | <input type="text" value="categorical"/> > 1 value | |
| Linear regression | <input type="text" value="numeric"/> | <input type="text" value="numeric"/> | - | |
| Chi-square Goodness of Fit | <input type="text" value="categorical"/> > 1 value | - | - | |
| Chi-square Test of Independence | <input type="text" value="categorical"/> > 1 value | <input type="text" value="categorical"/> > 1 value | - | |

Show detailed results

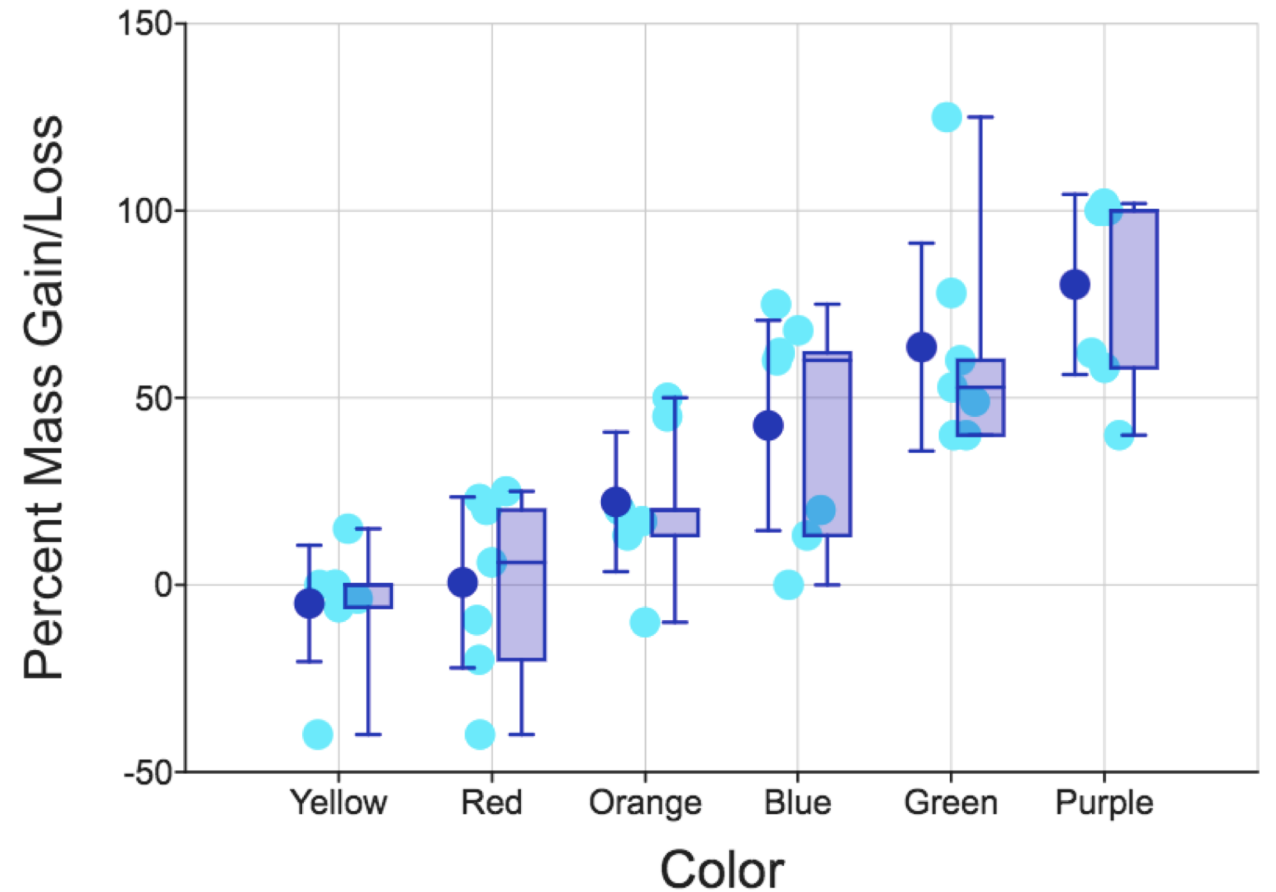
| Effect | Degrees of Freedom (df) | F-statistic (MS / MS residual) | P-value | Interpretation of P |
|-------------------|----------------------------|-----------------------------------|---------|---------------------|
| Error or Residual | | | | |

Note: Dot shows the mean. Error bars above and below show the confidence interval.



Data Classroom was designed with pedagogy in mind

- **Default plots show raw data** to emphasize the role of variation in interpretation
- **Layer multiple representations** of descriptive stats on the same plot
- **Attempt to reduce cognitive load** of creating graphs so more time can be spent on higher order interpretation
- **Built around principles of Tidy Data** to reinforce concept of a variable and prepare students to work in command line (R, etc.)



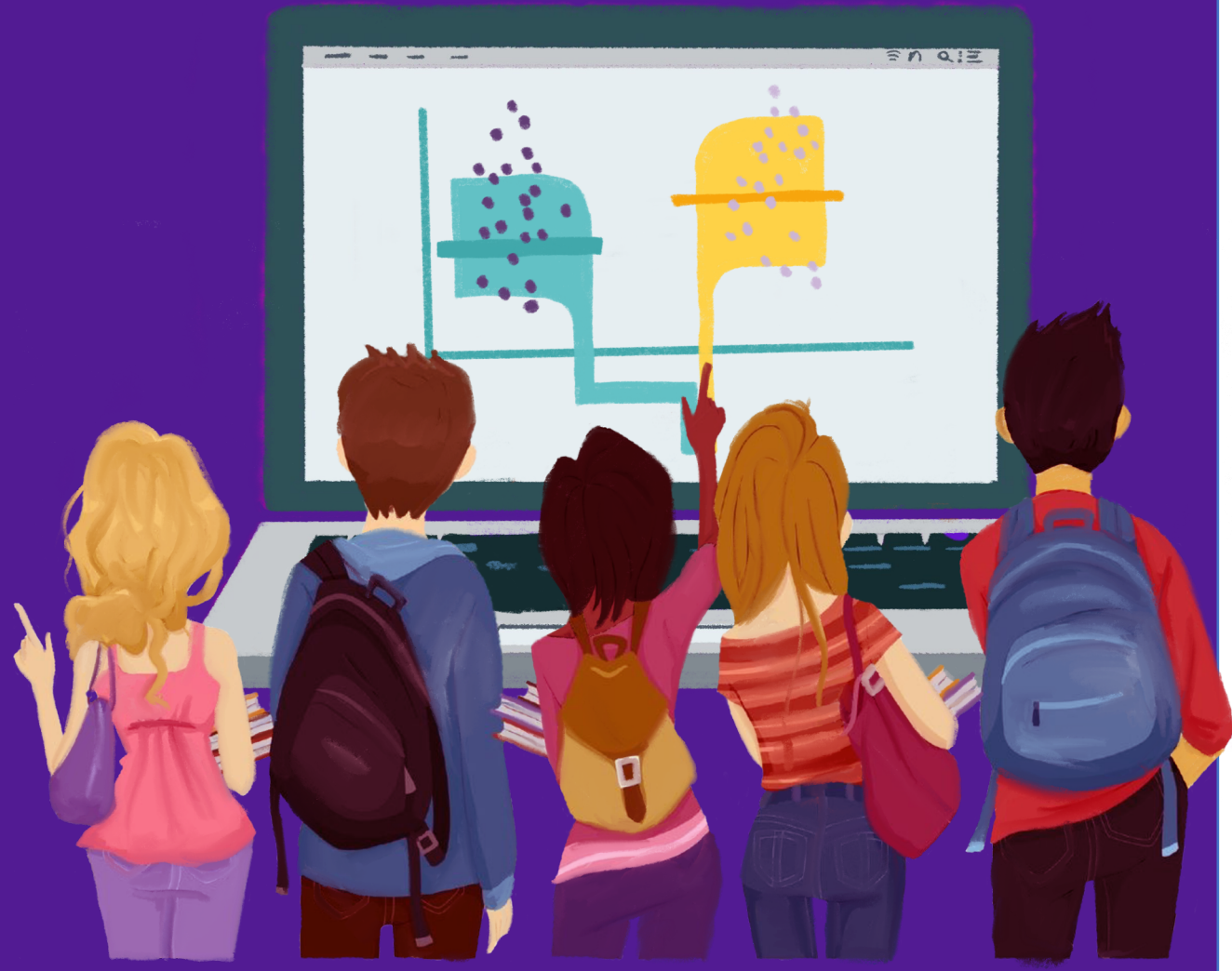
Note: Dot shows the mean. Error bars above and below show 95% confidence interval.

Note: Box and whiskers plot shows the median value (line), interquartile range (box), and full range of the data (whiskers above and below).

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