

NEW DIMENSIONS FOR TEACHING AND RESEARCH

Data Visualization

Anscombe's Quartet

Four different datasets with identical summary statistics.



What Is Data Visualization?

“Data visualization is the use of visual representations to explore, make sense of, and communicate data” – Stephen Few

Data visualization provides an easy way to explore data, gain insights, and discover issues. Visual exploration can detect trends missed by traditional summary statistics (see Anscombe's quartet).

Data visualization can communicate conclusions by providing a widely accessible way to represent trends in data. Interactive web-based visualizations can engage users with complex data that may otherwise be difficult to comprehend.

How Can Data Visualization Help Students Learn?

In many academic fields, working with data in some form is a fundamental research skill. Many students, especially undergraduates, lack the experience and advanced statistical knowledge to fully engage with current research. Visualization offers an accessible way for students to start using raw data to test their expectations and hypotheses and present their findings to others. These skills are transferrable across disciplines and occupations.

How Can Data Visualization Be Used in Teaching and Research?

Data visualization can help students learn to:

- Identify trends and patterns in data
- Design visualizations to convey ideas
- Relate data trends with course concepts
- Support arguments using data-driven techniques

Get Started

The University Libraries provides data visualization, workshops, customized classroom visits, and one-on-one consultations through the Research Hub. To learn about data visualization services, contact the Research Hub: researchhub@unc.edu.

To discuss using data visualization in your course, request a consultation with the Center for Faculty Excellence: cfe@unc.edu.

Selected Tools

- Microsoft Excel
- R
- Python
- Tableau
- Plot.ly
- ArcGIS Online
- CARTO
- JavaScript