

Principal Video: [Video Link](#)

- Writing is important.
- Skills we care about:
 - General writing skills (topic sentence, paragraphs, thesis statement, etc.).
 - Communicating results in correct language.
 - Communicating with tables and figures.
 - Formatting longer reports (IMRaD) in well-defined style.
 - Understanding, meeting client needs.
 - Critique and self-evaluation through writing.

Four Writing Activities for Statistics Students:

1. Stat1: Body Temperature and Study Habits (Scott Alberts & Hyun-Joo Kim) - [Video](#) (7m)
 - a. Writing to understand: Exploring the purpose of science writing.
 - b. Focus on how data analysis is communicated.
 - c. A template is provided so that students know where to start and later expand.
 - d. [Assignment](#) / [Assessment Rubric](#) / [Design Rationale and Outcomes](#)
2. Stat 2: Data Collection: Survey Design Group Project (Scott Alberts) - [Video](#) (9m)
 - a. Writing to explain a phenomenon to a general audience.
 - b. Focus on cascading major product aimed for a specific client audience.
 - c. Culminating high-stakes public experience.
 - d. [Assignment](#) / [Assessment Rubric](#) / [Design Rationale and Outcomes](#)
3. Consulting: Data Inference Critique (Scott Thatcher) - [Video](#) (7m)
 - a. Writing to aid cognition: Creating a focused research question.
 - b. Focus on short, written products (research questions/results).
 - c. In-person critique to involve entire class in the revision process.
 - d. Follow-on assignment to format a formal consulting report.
 - e. [Resources \(Design Rationale, Assignment and Student Work\)](#)
4. Data Science: Data Visualization Assignment (Scott Thatcher) - [Video](#) (4m)
 - a. Writing to critique a historical data visualization.
 - b. Writing to provoke thought on how to improve the visualization.
 - c. Reinforcement of formal academic writing standards.
 - d. [Resources \(Design Rationale, Assignment, Rubric and Student Work\)](#)

Other Materials:

[Campus Critical Thinking Rubric \(Truman State University, revised 2013\):](#)

[IMRaD Style Handout:](#)

Abstract: (150 words)

While statistics may be the “Grammar of Science” (Karl Pearson, 1892), we also know that successful data analysis includes good writing skills for multiple audiences. We will share writing activities and rubrics that have been successful at various levels at our public liberal arts university, including:

Activity 1: A short paper where a Stat1 student collects their own body temperature data every day for a month.

Activity 2: A semester-long survey research project in a Stat2 course that concludes with a group paper.

Activity 3: An early assignment in a Stat2 course where students are asked to critique an incorrect analysis and write a short report where the correct test is performed.

Activity 4: An integrative assignment for a data visualization course that recreates, critiques, and improves historical graphs such as those by William Playfair (*Commercial and Political Atlas* (1786) and *Statistical Breviary* (1801)), using **R** packages like tidyverse *ggplot*.

Goals: (150 words)

We hope that those who participate in our poster activity will consider adopting some broad principles that will inform their creation of assignments to help students develop as statistical writers. Participants will also leave with these specific assignments as templates for use in their own classes.

We will also share rubrics for evaluating and grading statistical writing. These include a framework for evaluating both statistical reasoning, such as hypothesis testing, p-values, checking assumptions, or good data collection, and also tie-ins to measures of critical thinking elements. These elements include thesis, background, evidence, and conclusion, which overlap nicely with statistical concepts, and more traditional writing elements such as tone/voice, style, and mechanics.