

**Course:** ERM-675  
**Title:** Data Presentation and Reporting in Education

**Professor:** Richard M. Luecht, PhD  
209 Curry Building  
(336) 334-3473  
[rmluecht@uncg.edu](mailto:rmluecht@uncg.edu)  
[www.uncg.edu/~rmluecht](http://www.uncg.edu/~rmluecht)

**Secretary:** Anita Dorfler  
206 Curry Building  
(336) 334-3471  
[anita@uncg.edu](mailto:anita@uncg.edu)

This course is intended for graduate students and faculty would want to learn how to better present and report quantitative data. The course will include some didactic lectures to convey core content or to demonstrate procedures, however, the course will primarily be conducted as a collaborative seminar emphasizing in-class discussions, hands-on activities and projects.

**Prerequisites:** ERM-680 (formerly ERM-618) or an equivalent intermediate statistical course.

### **Textbooks**

Jacoby, W. G. (1997). *Statistical Graphics for Univariate and Bivariate Data*. Thousand Oaks, CA: Sage Publications.

Tufte, E. R. (1997). *Visual Explanations: Images, Quantities, Evidence and Narrative*. Cheshire, Conn: Graphics Press.

### **Course Requirements and Grading**

There are no examinations in this course. Students will be graded on the following four components.

- *Class participation.* All students are expected to come to class prepared for the discussions and presentations, including having completed any readings and assignments. Participation may include brief [assigned] presentations by students of various graphical methods or reporting techniques.
- *Class notebook.* Students must complete a notebook for the course that organizes and details the core concepts and procedures covered during the semester. The notebook should contain sufficient content depth to be used as a reference, including “how to” instructions and examples. This notebook will be turned in for a grade.

*Class presentation.* Every student will be required to conduct a 20-30 minute presentation of an empirical research study that uses multivariate data. The presentation may be done using any relevant media (e.g., Powerpoint, overhead, web-based).

- *Class project.* Students will be required to prepare and submit a research project report summarizing an empirical research study that uses multivariate data with multiple demographic factors as well. The project should include primarily graphics or tables to describe the study and findings as completely as possible. No more than 500 words of text may be used to explain the graphics and tables (excluding figure captions, table headings, and title pages).

Each component will result in a letter grade (A, B, or C) and will be weighted equally in computing your final grade. The following grading table will be used.

Course Grade	Evaluation	Combinations
A	Superior	(A,A,A,A) or (A,A,A)+(B)
A-	Very good	(A,A)+(B,B)
B+	Good	[A+(B,B,B)] or [(A,A)+B+C]
B	Fair/acceptable	[(A,A)+(C,C)] or [A+(B,B)+C] or [A+B+(C,C)] or [(B,B,B)+C]
B-	Marginal	[A+(C,C,C)] or [(B,B)+(C,C)]
C+	Somewhat below marginal	[B+(C,C,C)]
C	Unacceptable	(C,C,C,C)

### Key Dates

- Feb. 05: Possible no class or guest lecturer
- Mar. 12: NO CLASS. Spring break. (UNCG closed).
- Apr. 02: Possible no class (AERA/NCME)
- May 07: Final class date.
- May 14: Hand in notebooks and final projects (due by 4 PM, hand in to 209 Curry or 206 Curry)

## Topics

Due to the seminar nature of this course, topics will not be presented in an exact linear sequence. Instead, readings and other homework will be assigned in the prior week. The following general topics will be covered over the course of the semester.

1. Effective visual communication involving quantitative data: perceptions, preferences and theory
2. Graphical displays of univariate data (e.g. histograms, polygons, pie charts, box -and-whisker plots)
3. Graphical displays of bivariate data (e.g. scatterplots, marginal box plots, bar charts, fitting simple regression lines, ellipses)
4. Density charts and probability graphs
5. Smoothers (e.g., polynomial, moving averages, LOESS, splines, distance-weighted least squares)
6. Contours and surface plots
7. ANOVA and MANOVA graphs
8. Graphical displays of multivariate data (trellis plots, scatterplot matrices, icons, vectors and images)
9. Using map graphics
10. Use of color and shading in graphics and tables
11. Photo imaging and high-density graphics
12. Graphic software resources (e.g., SPSS, Sygraph, SASgraph, JMP, DataDesk, Excel, Visio)
13. Displaying tabular data
14. Pivot tables
15. Interactive data analysis on the web