

School of Government | University of North Carolina at Chapel Hill

PUBA 744 (Immersion Course): Communicating Data for Public Impact

Fall 2019

John Quintero

Adjunct Instructor | Principal, South by North Strategies, Ltd.

Phone: (919) 622-2392 | E-mail: quintero@sog.unc.edu

Immersion Dates: October 3-5, 2019, at UNC School of Government | Knapp-Sanders Building

Pre-Course Dates: Five weeks between September 2 and 30, 2019, to be completed online

* The pre-course sessions will be completed remotely on an asynchronous schedule regardless of program affiliation (online or residential). The immersion session will occur in person for all students.

Course Overview

Over the past decade, the ways in which public administrators are expected to present data and conclusions have changed radically. The growing availability of raw public data, the increased availability of cheap and powerful analytical and presentation software, the ubiquity of mobile computing, the advent of social media, and the deepening scientific understanding of human perception—all of these factors have altered how public administrators should best present research and recommendations so as to ensure they resonate with policymakers, civic leaders, journalists, and the public.

“Data visualization” has become the catch-all term used to describe the methods, techniques, and tools for organizing and disseminating the kinds of information common in public life in ways grounded in recent scientific insights. While often discussed narrowly in relation to computer programs and design rules, data visualization really is a framework for communication; after all, no visual, no matter how slick, can save someone who has nothing to say.

Some critics often look warily at data visualization and dismiss it as the “bells and whistles” added at the end of a study to make it look “pretty.” Many practitioners, meanwhile, often jump directly to visualization without first thinking about what it is they want to say. In truth, the message and medium should go hand in hand, with one reinforcing the other.

Given how they straddle the academic and professional worlds, public administrators do not have the luxury of ignoring data visualization. Professionals must ground their work in sound research methods while also thinking deliberately about how best to present their findings in written documents, oral presentations, and online formats. The days of simply writing a lengthy research report and pasting some of its elements into a default presentation template—if they ever existed—are gone; instead, public servants need to think more about the narrative path they want to lead people along and how best to aid the mental comprehension and retention of information.

This skills-based immersion aims to provide MPA students with a crash introduction to the effective communication of public data (*e.g.*, data from the US Census Bureau). Covered topics include how to develop clear messages, how to design effective visual elements like charts and tables, and how to design more effective oral presentations.

There are no formal pre-requisites for this course, and no prior knowledge of specific analytical techniques or software packages is required for successful participation.

Course Format

The immersion session on October 3-5 will combine lectures, class discussions, group work, and in-class

activities. Meanwhile, the five weeks of pre-course activities, which students will complete online in a self-directed manner, provide the foundation needed to profit from the immersion sessions. Because all the sessions complement each other, students must complete all of them to benefit from the class.

Texts and Readings

Data visualization is a multidisciplinary approach for effectively communicating information—an approach with roots in such diverse fields as data analysis, research methodology, graphic design, journalism, and computer programming. As such, there is no standard, comprehensive textbook, so this class pieces together a reading list.

The **required texts** for the class are the following:

Evergreen, Stephanie, *Effective Data Visualization: The Right Chart for the Right Data*, Second Edition (Thousand Oaks, CA: Sage, 2019)

Knafllic, Cole Nussbaumer, *Storytelling with Data: A Data Visualization Guide for Business Professionals* (Hoboken, NJ: Wiley, 2015) [Note: an e-version of this book is available through UNC Libraries.]

Schwabish, Jonathan, *Better Presentations: A Guide for Scholars, Researchers, and Wonks* (New York: Columbia University Press, 2017) [Note: an e-version of this book is available through UNC Libraries.]

All other readings and class materials will be available on the course Sakai site.

Students also are encouraged to review some of the better blogs related to data presentation:

Evergreen Data (Stephanie Evergreen): <http://stephanieevergreen.com/blog/>
Storytelling with Data (Cole Nussbaumer Knafllic): <http://www.storytellingwithdata.com/>
Chartable (Data Wrapper): <http://blog.datawrapper.de>
PolicyViz (Jonathan Schwabish): <https://policyviz.com/blog/>
Flowing Data (Nathan Yau): <https://flowingdata.com/>
Perceptual Edge (Stephen Few): <http://www.perceptualedge.com/blog/>
Cool Infographics (Randy Krum): <http://coolinfographics.com/>
Information is Beautiful (David McCandless): <https://informationisbeautiful.net/blog/>
WTF Visualizations: <http://viz.wtf/>
Carolina Demography: <http://demography.cpc.unc.edu/blog/>

Many of these same authors are active on Twitter, where they have helped to create a larger community of interest that regularly shares examples—both good and bad—of data visualizations. Some useful tags are #dataviz, #SWDchallenge, #MakeoverMonday, and #DataScience.

Computer Requirements and Training Resources

Data visualizations may be generated in any number of computer programs, including such standard Microsoft Office programs as Excel and PowerPoint. For the purposes of this course, those programs are sufficient; in fact, many of the resources noted above assume the use of those programs.

That said, other visualization software exists, such as Tableau (interested students can obtain a 1-year university license; see <https://www.tableau.com/academic/students>) and R, which is open source.

Additionally, the Research Hub at UNC Libraries sponsors free training sessions and archives past classes on its website (<https://library.unc.edu/data/>).

Course Grading

Grades at the graduate level offer feedback to students on their performance in a given course. This course will use the standard grading system employed in the MPA program:

H: High Pass	(Clear excellence)
P: Pass	(Entirely satisfactory graduate work)
L: Low Pass	(Inadequate graduate work)
F: Fail	(Failure to perform graduate work)

Below is the contribution of each individual PUBA 745 assignment toward the final class grade:

Class participation:	15 points
Weekly exercises:	10 points
Individual data critique:	15 points
Individual presentation critique:	15 points
Team data workbook:	25 points
Team data presentation:	<u>20 points</u> 100 points

Students with a cumulative point total in excess of 95 can expect to receive an “H” for the course, and those with a cumulative point total between 80 and 95 can expect to receive a “P.” A cumulative point total between 60 and 79 equates to an “L,” and a total of less than 60 points will result in a grade of “F.”

Course Assignments

Student grades for the course will be based on six components. Further guidance on assignments will be provided separately. Summaries of each component follow. Please submit all assignments as PDF files via the “Assignments” tab on the course site unless otherwise instructed.

Class Participation: Students are expected to complete all of the pre-course sessions and to attend every session on October 3-5. Participation involves more than speaking frequently and can occur in any number of forms, both in class and through the sharing of relevant materials on the course’s online site.

Weekly learning exercises: During each of the five pre-course sessions, students will be expected to complete a short learning exercise. Instructions will be available on the course site. Each exercise must be completed by noon of the following Monday.

Individual data critique: During the pre-course period, each student will prepare a 3-5 page reflection paper that critiques a prior piece of work prepared by the student as part of the MPA program (*e.g.*, a research paper) or in a professional setting based on the new concepts covered in PUBA 744. This individual critique will involve the redesign of several graphs or tables. The assignment will be due at 12:00 pm on September 23.

Graph Book: As part of the class, students will be broken into teams and assigned a set of prepared demographic or economic data about a community in North Carolina. Each team then will need to prepare a set of 12-16 graphs that visualize elements of the data set. A rough draft of the graph book should be prepared in advance of the immersion session (by 12:00 pm on October 2) and during the session, each team will be able to get feedback from the instructor and have time to revise the graphs. The final graph book will be due at 5:00 pm on October 11.

Data presentation slides: As part of the course, each team will need to prepare a presentation slide deck that would be suitable for a 15-minute oral presentation on the topic. The presentation should highlight key findings from the community level data set analyzed to prepare the graph book. The presentation should be aimed at a general audience of educated civic leaders. A rough outline should be prepared in advance of the immersion session, during which time each team will be able to work on the project in more depth and get feedback from the instructor and have time to revise and finalize the graphs. After the immersion session, each group will need to record a version of the presentation and submit the recording and the associated slide deck. The deadline is 5:00 pm on October 18.

Individual presentation critique: Based on the material covered in class, each student will prepare a 3-5 page reflection paper that critiques a prior presentation prepared by the student as part of the MPA program (e.g., a client briefing) or in a professional setting based on the new concepts covered in PUBA 744. The assignment will be due by 5:00 pm on October 25.

Assignment Due Dates

Below is a schedule of due dates for each of the course assignments:

Weekly Assignments:	by 12:00 pm on the following Monday
Individual data critique:	by 12:00 pm on Sept. 23
Graph book:	first version due by 12:00 pm on Oct. 2 final version due at 5 pm on Oct. 11
Data presentation:	prepare rough outline and bring to immersion final version due at 5 pm on Oct. 18
Individual presentation critique:	by 5:00 pm on Oct. 25

Late Submission Policy Assignments

To keep the course on schedule, late assignments will not be accepted.

Disability Accommodations

If you have a verified disability and need academic accommodations, let me know, so we can arrange the appropriate supports with the office of Accessibility Resources and Services.

Honor Code

Students in this class are bound by the Honor Code. For this course, students are encouraged to seek advice and suggestions from other class members on any and all assignments, unless instructed otherwise. This includes exchanging drafts for feedback and editing. Students are required to cite or attribute all ideas, data, and information that are not their own; this includes information in visuals.

Course Schedule

As a reminder, the pre-course sessions are asynchronous, with students completing each session at their own pace. All materials will be posted to the course website. **Please check your email accounts regularly for notifications all additional clarifications the instructors may provide.**

Course Readings

The weekly readings (below) are divided into three categories. Readings marked as **“required”** should be read each week. The readings marked as **“supplemental”** provide additional context—often of a historical or comparative nature—and can be read as time allows, either in their entirety or via a “power read.” Lastly, the readings marked as **“writing samples”** are practical applications of the topics being discussed that week. They are included to give you examples to draw upon in the future. The writing samples can be read as time allows, either in their entirety or via a “power read.”

All readings not from the required texts will be available on the course site.

Week 1 (September 2): Data Visualization: Overview and History

Required: Watch brief overview video on course site

Knaflic, Cole Nussbaumer, *Storytelling with Data: A Data Visualization Guide for Business Professionals* (Hoboken, NJ: Wiley, 2015), Chapter 1: The Importance of Context (pp. 19-33)

Evergreen, Stephanie, *Effective Data Visualization: The Right Chart for the Right Data*, Second Edition (Thousand Oaks, CA: Sage, 2019), Chapter 2: When a Single Number is Important: Showing Mean, Frequency, and Measures of Variability (pp. 15-47) and Chapter 6: When There Are Parts of a Whole: Visualizing Beyond the Pie Chart (pp. 171-192)

Supplemental: Camões, Jorge, *Data at Work: Best Practices for Creating Effective Charts and Information Graphics in Microsoft Excel* (San Francisco, CA: Pearson, 2016), Chapter 2: Visual Perception (pp. 24-61).

Friendly, Michael, *A Brief History of Data Visualization* (Toronto, ON: York University, 2006)

Writing Sample: : Look at the set of short of county briefings prepared by the Triangle Community Foundation in 2017; see <http://www.sbnstrategies.com/archives/14452>

Week 2 (September 9): Introduction to Graphics

Required: Watch brief overview video on course site

Knaflic, Cole Nussbaumer, *Storytelling with Data*, Chapter 2: Choosing an Effective Visual (pp. 35-69) and Chapter 3: Clutter Is Your Enemy (pp. 71-97)

Evergreen, Stephanie, *Effective Data Visualization*, Chapter 3: How Two or More Numbers Are Alike or Different: Visualizing Comparisons (pp. 49-88)

Evergreen, Stephanie, *Presenting Data Effectively: Communicating Your Findings for Maximum Impact*, Second Edition (Thousand Oaks, CA: Sage, 2018), Appendix B: Data Visualization Checklist (pp. 215-220)

Supplemental: Few, Stephen, *Show Me the Numbers: Designing Tables and Graphs to Enlighten* (Burlingame, CA: Analytics Press, 2012), Chapter 8: Table Design (pp. 155-184)

Tufte, Edward, *The Visual Display of Quantitative Information*, Second Edition (Cheshire, CT: Graphics Press, 2001), Chapter 2: Graphical Integrity (pp. 53-77)

Writing Sample: Tippett, Rebecca & Jessica Stanford, *North Carolina's Leaky Educational Pipeline and Pathways to 60% Postsecondary Attainment: Executive Summary* (Chapel Hill, NC: Carolina Population Center, 2019), https://ncedpipeline.org/wp-content/uploads/2019/02/NC-Leaky-Pipeline_FINAL.pdf

Week 3 (September 16): Designing Effective Visuals

Required: Watch brief overview video on course site

Knaflic, Cole Nussbaumer, *Storytelling with Data*, Chapter 4: Focus Your Audience's Attention (pp. 99-126), Chapter 5: Think Like a Designer (pp. 127-150), and Chapter 6: Dissecting Model Visuals (pp. 151-163)

Evergreen, Stephanie, *Effective Data Visualization*, Chapter 4: How We Are Better or Worse than a Benchmark: Displaying Relative Performance (pp. 89-127)

Supplemental: Evergreen, Stephanie, *Presenting Data Effectively*, Chapter 3: Text (pp. 76-118),

Writing Samples: Look at the set of short policy papers in the series *A Comeback Short of the Mark: Income Trends in North Carolina in the Wake of the Great Recession* prepared by John Quintero for Think NC First in 2016; see <http://www.sbnstrategies.com/archives/14374>

Week 4 (September 23): A Crash Course in US Census Data

Required: Watch brief overview video on course site

Quintero, John, *Running the Numbers: A Practical Guide to Regional Economic & Social Analysis* (New York: Routledge, 2014), Chapter 5: Demographics (pp. 101-132)

Knaflic, Cole Nussbaumer, *Storytelling with Data*, Chapter 9: Case Studies (pp. 207-240)

Evergreen, Stephanie, *Effective Data Visualization*, Chapter 9: How Things Changed over Time: Depicting Trends (pp. 257-291)

Supplemental: US Census Bureau, *Understanding and Using American Community Survey Data: What All Data Users Need to Know* (Washington, DC: US Department of Commerce, 2018), Chapters 6-11 (pp. 44-69)

Writing Sample: Stanford, Jessica, "Where Are We Headed? Population Change in North Carolina," Presentation to Summer Educational Leadership Conference, June 2019, <https://wresa.org/wp-content/uploads/2016/08/NC-Demographic-Changes.pptx>

Week 5 (September 30): Designing Effective Presentations

Required: Watch brief overview video on course site

Schwabish, Jonathan, *Better Presentations: A Guide for Scholars, Researchers, and Wonks* (New York: Columbia University Press, 2017) Chapter 4: The Text Slide (pp. 65-82), Chapter 5: The Data Visualization Slide (pp. 83-115), Chapter 6: The Image Slide (pp. 117-143), and Chapter 7: The Scaffolding Slides (pp. 135-143)

Knaflic, Cole Nussbaumer, *Storytelling with Data: A Data Visualization Guide for Business Professionals* (Hoboken, NJ: Wiley, 2015), Chapter 7: Lessons in Storytelling (pp. 165-185) and Chapter 8: Pulling It All Together (pp. 187-205)

Evergreen, Stephanie, *Effective Data Visualization*, Chapter 5: What the Survey Says: Showing Likert, Ranking, Check-All-That-Apply, and More (pp. 129-170)

Supplemental: Tufte, Edward, "The Cognitive Style of PowerPoint: Pitching Out Corrupts Within," in *Beautiful Evidence* (Cheshire, CT: Graphics Press, 2006)

Writing Samples: Quintero, John, "The Economic Impact of Community Action," Presentation to North Carolina Community Action Association Poverty Conference, Asheville, NC, May 2018.

Quintero, John, "Who Counts? Race, Ethnicity, Nationality, and the Census," Presentation to NCGrowth Analyst Meeting, Chapel Hill, NC, October 2018

#####

On-Campus Immersion Dates: evening of Thursday, October 3 until 5:00 pm on Saturday, October 5

#####