WSS Short Course
Communicating Data Clearly

Date: Friday, April 21, 2017
Time: 9:00 am – 5:00 pm
Instructor: Dr. Naomi Robbins
Place: Bureau of Labor Statistics
Conference rooms 1-3, 2 Massachusetts Avenue NE, Washington, DC

Course Content:

Communicating Data Clearly describes how to draw clear, concise, accurate graphs that are easier to understand than many of the graphs one sees today. The course emphasizes how to avoid common mistakes that produce confusing or even misleading graphs. Graphs for one, two, three, and many variables are covered as well as general principles for creating effective graphs. This short course will cover principles and methods of effective graphs. It is software agnostic and does not include software training.

About the Instructor: Naomi B. Robbins is a seminar leader and consultant who specializes in the graphical display of data. She trains corporations and organizations on the effective presentation of data. She also reviews documents and presentations for clients, suggesting improvements or alternative presentations as appropriate. She is the author of *Creating More Effective Graphs* who recently served as Chair of the Statistical Graphics Section of the American Statistical Association. Dr. Robbins received her Ph.D. in Mathematical Statistics from Columbia University, M.A. from Cornell University, and A.B. from Bryn Mawr College. She had a long career at Bell Laboratories before forming NBR, her consulting practice.

Course Schedule:

8:15 - 9:00 Coffee, breakfast, and check in
9:00 - 9:25 **Introduction**
- Introductions
- Pie chart/dot plot quiz
- What we mean by an effective graph

9:25 – 9:55 **Limitations of some common graph forms**
- Pie charts
- Charts with pseudo-3D effect
- Stacked bar charts
- Difference between curves
- Area or bubble charts
- Gauges
- Donut charts

9:55 - 10:05 Break
10:05 – 10:35 **Human perception and our ability to decode graphs**
- Sequential vs. pre-attentive processing
- Gestalt laws

Cleveland's hierarchy

10:35 – 11:15 **Newer and more effective graphs in one and two dimensions**

Dot charts

Order in charts

Logarithmic scales

Box plots

Jittering

Strip plots

Smoothing

Sparklines

Bullet graphs

Time series

Four ways to plot time series

Components of a time series

Month or cycle plots

11:15 – 11:25 Break

11:25 – 11:55 **Newer and more effective graphs in three or more dimensions**

Trellis Displays

Scatterplot matrices

Mosaic plots

Parallel coordinate plots

Linked micromaps

11:55 – 12:15 **Plotting Likert and other rating scales**

What is wrong with most of the ways rating scales are plotted now?

12:15 - 1:15 Lunch (provided)

1:15 - 2:30 **General principles for creating effective graphs**

Visual clarity

Clear understanding of what is graphed

2:30 - 2:40 Break

2:40 – 3:20 **Scales**

Must zero be included?

When to use logarithmic scales

Scale breaks

Using two different scales (double-Y axes)

3:20 – 4:00 **Choosing colors for graphs**

ColorBrewer color schemes

Color Vision Deficiencies

Simulating how those with color vision deficiencies will see figure

Consideration of reproduction

4:00 - 4:10 Break

4:10 – 4:30 **Turning tables into graphs**

Obesity example

4:30 – 5:00 **Before and after examples**

Q&A

Advance registration: In addition to your RSVP here, please go to https://www.eventbrite.com/e/wss-short-course-communicating-data-clearly-tickets-31258112857 to register and pay for the class. Online registration will close on April 17, 2017; earlier if the course fills up.

Registration Fee:

Full-time students (at most 8): $52.24 advance, $72.24 at the door
WSS members: $164.99 advance, $184.99 at the door
All others: $216.24 advance, $246.24 at the door

Contact person: Yang Cheng, 301-763-3287, yang.cheng@census.gov