# Agenda: MST 6600 February 14th, 2018

Debrief for week 5:

1. Production Process Characterization; applicable whenever you deal with
   1. Distribution (location, spread shape of data)
   2. Variability
   3. Error propagation
   4. Populations and sampling
   5. Modeling
   6. Experiments (process improvement)
2. This week’s graphic of discussion:
   1. [Shocker: Humanities Grads Gainfully Employed and Happy](http://www.insidehighered.com/news/2018/02/07/study-finds-humanities-majors-land-jobs-and-are-happy-them?mc_cid=432bfdc395&mc_eid=2ac017900d)
   2. Small group exercise:
      1. using post-it notes, what major changes would you recommend
      2. as a group, using your post-it notes, what would the ideal graph look like

(BREAK)

1. Exploit a few graphical techniques:
   1. Distribution:

|  |  |  |
| --- | --- | --- |
| Parameter | Numerical | Graphical |
| Location | [mean](http://www.itl.nist.gov/div898/handbook/eda/section3/eda351.htm" \l "MEAN)  [median](http://www.itl.nist.gov/div898/handbook/eda/section3/eda351.htm#MEDIAN) | [scatter plot](http://www.itl.nist.gov/div898/handbook/eda/section3/scatterp.htm)  [box plot](http://www.itl.nist.gov/div898/handbook/eda/section3/boxplot.htm)  [histogram](http://www.itl.nist.gov/div898/handbook/eda/section3/histogra.htm) |
| Spread | [variance](http://www.itl.nist.gov/div898/handbook/eda/section3/eda356.htm#VARIANCE)  [range](http://www.itl.nist.gov/div898/handbook/eda/section3/eda356.htm#RANGE)  [inter-quartile range](http://www.itl.nist.gov/div898/handbook/eda/section3/eda356.htm#IQRANGE) | [box plot](http://www.itl.nist.gov/div898/handbook/eda/section3/boxplot.htm)  [histogram](http://www.itl.nist.gov/div898/handbook/eda/section3/histogra.htm) |
| Shape | [skewness](http://www.itl.nist.gov/div898/handbook/eda/section3/eda35b.htm)  [kurtosis](http://www.itl.nist.gov/div898/handbook/eda/section3/eda35b.htm) | [box plot](http://www.itl.nist.gov/div898/handbook/eda/section3/boxplot.htm)  [histogram](http://www.itl.nist.gov/div898/handbook/eda/section3/histogra.htm) |

* 1. Variability:
     1. numerically with the variance (standard deviation) calculation and
     2. graphically with a histogram or qq plot, run plot
  2. (Error propagation)
  3. Populations and sampling. Adequacy of a sample depends on the following four attributes:
     1. Representativeness of the sample (is it random?)
     2. Size of the sample
     3. Variability in the population
     4. Desired precision of the estimates
  4. Modeling (process model or fishbone diagram)
  5. Experiments: Generally, our ultimate goal in PPC is to find and quantify causal relationships.

1. Look at the case studies for NIST Chapter 3 **(RStudio)**

Meeting outcomes:

1. Understand the graphical methods employed by EDA for process characterization.
2. Use EDA to explore the data and be able to make recommendations based on the data.
3. Extend these methods to original datasets.