

## **MIS 0855 – Data Science (Section 006) – Fall 2017**

### **Exam #2 Guide**

Read class slides, reading assignments, and in-class exercises. Take a look at videos posted on the class site.

#### **Day 13 - Data Visualization**

- Four data visualization principles
- Key messages from visualization in Slide Page 5-10
- When to use a table instead of a graph. When to use a graph instead of a table
- When to use a bar chart, a line chart, a pie chart, and a scatter plot, for what?

#### **Day 14 – Data Distortion**

- Watch the YouTube video for Day 14
- A pie chart with the total percentages greater than 100%
- A bar chart without 0 in the vertical axis
- The correct size of squares
- State leader vs. national leader
- Why a 3-D chart is misleading
- Why using as little link as possible

#### **Day 15 – In-Class Exercise – Creating Interactive Dashboards**

- What a Tableau extract is
- What Tableau Public is for

#### **Day 16 – In-Class Exercise – Integrating Data**

- The calculated field for RepAge
- How to display a trendline in a graph

#### **Day 17 – Dirty Data**

- Watch the two videos for Day 17
- Why data gets dirty
- The origin of dirty data
- The agency problem and a solution to fix that problem
- What to do with outliers (usually large data)
- Activities in data cleansing
- Five characteristics of high-quality data
- Trade-off in data cleansing

#### **Day 18 - In-Class Exercise – Finding Bad Data and Assignment #3**

- How to use MATCH function in Excel
- Using a scatterplot to find outliers

**Day 21 - In-Class Exercise – Visualizing KPIs**

- How to visualize the departure delay KPI in Tableau
- How to create a heatmap in Tableau

**Day 22-23 - In-Class Exercise – Visualizing Maps**

- What types of maps are available in Tableau – state, city, county, metropolitan areas, zipcode, congressional districts, etc.
- Difference between a filled map and a symbol map
- How to fix missing (or “unknown”) geographic locations

**Day 25-26 – In-Class Exercise – Advanced Data Visualization**

- How to create a dual line chart
- What information is available from a box plot
- What is the name of this chart? (among dual line chart, bubble chart, box plot, bullet graph, histogram)

**Day 27-28 – In-Class Exercise – Visualizing Network**

- How to structure an Excel file for visualizing a network in Tableau
- Steps in visualizing a network in Tableau (Part 1)