Topic Outline
This outline describes only the scope of the course; the sequence is described in each unit.

I. Interpreting Data
  A. Types of data
  B. Numerical and graphical summaries
          1. Measures of center and spread, boxplots
          2. Bar plots
          3. Histograms
          4. Scatterplots
          5. Graphical summaries of multi-variate data
  C. Simulation and visual inference
          1. Side-by-side bar plots and association
          2. Scatterplots
  D. Models
          1. Linear models
          2. k-means
          3. Smoothing
          4. Learning and tree-based models

II. Making Inferences and Justifying Conclusions
  A. Aggregating data
          1. Identification of sources
          2. Mechanics of Web 2.0
          3. Comparison of sources
  B. Data with special structures
          1. Random sampling
          2. Random assignment and A/B testing
          3. Simulation-based inference
  C. Participatory Sensing
          1. Designing a campaign
          2. Participation as a data collection strategy

III. Probability
  A. Computers and randomness
          1. Web services
          2. Pseudo-random numbers (optional)
  B. Frequency and probability
  C. Probability calculations

IV. Algebra in RStudio
          1. Vectors
          2. Algorithms
          3. Functions
          4. Evaluating and fitting models to data
          5. Graphical representations of multivariate data
          6. Numerical summaries of distributions and interpreting in context