This document gives an outline of the topics covered in each lab so that they can be assigned at the appropriate time during the semester. If you have any suggested edits please email [bmckay52@uga.edu](mailto:bmckay52@uga.edu).

LAB 1: Introduction to the online lab format and Introduction to R and “Data”.

<https://epibiouga.shinyapps.io/Lab1_1004/>

LAB 2: Focuses on interpreting and making histograms in R.

1. Interpreting Histograms
2. Which variable types to use with histograms
3. Making histograms
4. Impact of bin selection and 4 methods to help get the right size

<https://epibiouga.shinyapps.io/Lab2_1008/>

LAB 3: Focuses on interpreting and making box plots in R

1. Interpreting Box plots
2. Making Box plots
3. Comparing box plots

<https://epibiouga.shinyapps.io/Lab3_1009/>

LAB 4: Introduces students to the steps of a basic data analysis

1. Data Cleaning
2. Variable types in R
3. Making Tables
4. Making Figures with numeric summaries

<https://epibiouga.shinyapps.io/Lab4_10012/>

LAB 5: Life Tables

1. Life expectancy
2. Survival Curves
3. Hazard Functions

<https://epibiouga.shinyapps.io/Lab5_10017/>

LAB 6: Diagnostic and Screening Tests

1. Diagnostic and Screening tests
2. Sensitivity, Specificity, and Accuracy
3. ROC curves
4. AUC calculations
5. Cut-off values

<https://epibiouga.shinyapps.io/Lab6_10018/>

LAB 7: Discrete Distributions

1. The Binomial Distribution
   1. Calculating Probability and Percentiles
2. The Poisson Distribution
   1. Calculating Probability and Percentiles

<https://epibiouga.shinyapps.io/Lab7_10019/>

LAB 8: Normal Distribution

1. Calculating Probability and Percentiles

<https://epibiouga.shinyapps.io/Lab8_10020/>

LAB 9: Random Sampling and Central Limit Theorem

1. Review of distributions
   1. Setting to show that they can be approximated by normal distribution
2. Random sampling
   1. So that getting good estimates with random samples does not require very large samples in many cases
3. Central Limit Theorem
   1. Apply it to the data in the exercises and see if resulting distributions are normal

<https://epibiouga.shinyapps.io/Lab9_10024/>

LAB 10: One Sample T Methods

1. 1-sample *t*-tests
   1. Hypothesis testing and Confidence Intervals
2. Making new variables in R
   1. Using a variable in the data set to make a new one

<https://epibiouga.shinyapps.io/Lab10_10025/>

LAB 11: Paired t Test

1. Paired *t*-tests in R
   1. Hypothesis tests and Confidence Intervals
2. Visualizing paired data in R

<https://epibiouga.shinyapps.io/Lab11_10028/>

LAB 12: Two Sample *t*-test

1. Two-sample \*t\* test in R
   1. Hypothesis tests and Confidence Intervals
2. Violin Plots in R

<https://epibiouga.shinyapps.io/Lab12_10032/>

LAB 13: Hypothesis Tests and Confidence Intervals for Proportions

1. One Proportion tests in R
   1. Hypothesis tests and Confidence Intervals
2. Two Proportion tests in R
   1. Hypothesis tests and Confidence Intervals

<https://epibiouga.shinyapps.io/Lab13_10034/>

Check here for helpful hints about deploying apps to shinyapps.io

https://cran.r-project.org/web/packages/learnr/vignettes/shinyapps-publishing.html