**BIOS 6660, Spring 2019**
**Homework 3: Intermediate R**
**Due: Tuesday, February 12th at 10:30am**

In this assignment, you will create an R Markdown report, combining R code with text explanations. You will work with dplyr and ggplot2 to analyze and visualize a large dataset.

**Instructions for turning in assignment:** As with Homework 2, you will commit a final version of your work to GitHub and submit the URL of that repository version. We will be looking for the files **`hw3.Rmd`** and **`hw3.html`** inside the **`Homework_3`** subdirectory in your repository. Feel free to commit intermediate versions of the files to GitHub as you develop your work; after all, that is the point of version control. When you are ready to submit the assignment, commit and push final versions of both files to GitHub, and submit the appropriate URL through Canvas.

### Step 1: Installing required packages

In RStudio on your computer, install the following packages if you haven't already:

- dplyr
- ggplot2
- nycflights13

### Step 2: Setting up the R Markdown Document

Download the file **`hw3_template.Rmd`** from Canvas and save it in a directory named **`Homework_3`** in your **`BIOS6660`** Git repository; rename your copy of the file to **`hw3.Rmd`**.

### Step 3: Complete all instructions in the R Markdown document

The R Markdown document contains the outline of a workflow analyzing a dataset of all flights departing the NYC area in 2013. Complete the document by replacing each instruction marked "TODO" with your own work. You will be writing text explanations as well as analysis code.

**Note**: there are two main ways to run the code in an R Markdown document. As we learned in class, you can "knit" the document to a nicely formatted HTML report. You should occasionally knit the document as you go along, checking that the report looks good and is what you expect. Additionally, you can run the file as a normal R script, maintaining any created values inside your environment in RStudio. This can be very helpful for visibility into what your code is doing.

As a final piece of advice, check out the keyboard shortcuts in RStudio for running as a script and for knitting the report.

**Step 4: Knit a final HTML report**

Search the document for the string “TODO” to make sure you have completed all tasks. When you have completed the assignment, knit a final version of **`hw3.html`**, and commit both files to GitHub.