# Homework 01

*DSO 545: Statistical Computing and Data Visualization*

*Spring 2018*

## Due Date: Wednesday Jan 17, 2018 (at the end of the day 11:59pm)

### Instructions

- This homework uses the tips data ("tips.csv"). You can download it from blackboard
- Your R script file, should include your name, a title, and **brief text commenting on each question**, and it should be saved as "LastnameFirstname.R".
- Use R to answer all question. Write R code for each question!
- I won't tolerate any kind of cheating or late submissions
- Upload your solution to blackboard. Click on the "Homework 01 link" on blackboard to upload the R file.
- Good luck!

### Problem 1: General R Questions

1. Create a vector that contains numbers (10, 15, 20, 25, . . . , 130). Save it in a varaible called `vec`.
2. Use the function `length()` to find out how many elements there are in `vec`?
3. What is the value of the 16th element?
4. Look online for a function that computes the average, median, and standard deviation in R. Use these functions to compute the average, median, and standard deviation for `vec`.
5. List all the values that are multiples of 10. Save them all in a vector called `vec10`.

### Problem 2: Tips in Resturants

Food servers' tips in resturants many be influenced by many factors, including the nature of the resturant, size of the party, and table locations in the resturant. Resturant managers need to know which factors matter when they assign tables to food servers. For the sake of staff morale, they usually want to avoid either the substance or the appearance of unfair treatment of servers, for whom tips (at least in restaurants in the United States) are a major component to pay.

In one resturant, a food server recorded the following data on all customers they served during an interval of two and a half months in early 1990. The resturant, located in a suburban shopping mall, was part of a national chain and served a varied menu. In observance of local law the restaurant offered seating in a non-smoking sections to patrons who requested it. Each record includes a day and time, and taken together, they show the server's work schedule.

| **Variable** | **Explanation** |
|---|---|
| obs | Observation Number |
| totbill | Total bill (cost of the meal), including tax, in US dollars |
| tip | Tip (gratuity) in US dollars |
| sex | Sex of the person paying for the meal |
| smoker | Smoker in party? |

| Variable | Explanation |
|---|---|
| day | Day of the week |
| time | day or night time? |
| size | Size of the party |

6. Read the dataset from "tips.csv", and save it in a variable called `tips`.
7. Use the function `sum()` to compute the total tips in the dataset.
8. How many females are there in the dataset?
9. What is the total tip on a **Thursday day**?
10. How many **female smokers** are in the tips dataset who dine on **Friday**?