STSCI 5010 HW3

(Due: 11:59 PM, 11/8/2018)

General instructions:

- Download expenses.sas7bdat and company.sas7bdat from the course Blackboard website.
- Use title statements to mark the beginning of each question and to briefly explain each output and what the SAS code does. If titles are missing, up to 5 points are subtracted.
- Use the footnote code "-- Produced by &sysuserid --" for all your output.
- Use SAS comments to provide your answers to the questions (if any) right after the end of the relevant SAS code.
- A libref called HW3 should be created to hold all your SAS files for this assignment.
- Turn on your HTML output option if it is not already turned on.
- At the very beginning of your SAS program, you are required to use an ODS statement so that all your HTML output will be automatically write a PDF file, LastName_FirstName_HW3_HTML.PDF, which should be saved in the same folder to which your HW3 libref points.
- Submit three files (compressed with 7-zip or a similar tool, LastName_FirstName_HW3.7z) *to the course website*:
  - Your SAS code (in one single file), named LastName_FirstName_HW3.sas.
  - Your SAS HTML output in PDF format, named LastName_FirstName_HW3_HTML.PDF. (if missing 5 points off)
  - Your SAS log file, named LastName_FirstName_HW3_log.log. (if missing 5 points off)

1. With the **expenses**.sas7bdat, which contains expenses of all the flights of an airline in December 1999, create a dataset in the HW3 library, RunningSum, by adding a new column called SumExpenses to the dataset to show the cumulative totals. Display the new dataset. What is the total expense of the company in December 1999?

2. Using the same dataset **expenses**.sas7bdat, you are required to create a new column called Flight_Sum_Expenses for each flight ID in a temporary dataset, Sum_by_flight, which only contains the FlightID and Flight_Sum_Expenses columns; use the Drop= option to achieve this. Display the new dataset.

3. Using SAS Functions.

    a) Without and with creating a dataset (you have to code for both situations), using an appropriate SAS function, calculate the SAS date value for January 1, 1987 and the SAS date value for September 1, 2015. Next calculate the number of

weeks between January 1, 1983 and September 1, 2015 using a SAS function. Give your answers as SAS comments when you create a SAS dataset, and output your answers to SAS log when you do not create a SAS dataset.

b) Without and with creating a dataset (you have to code for both situations), using appropriate SAS functions, determine the date 107 weeks after October 15, 2011. Give your answers as SAS comments when you create a SAS dataset, and output your answers to SAS log when you do not create a SAS dataset.

c) Using the SAS dataset **company**.sas7bdat and an appropriate SAS function, create a new SAS dataset that at least contains the following two variables based on the values of variable "name." Display your new dataset.

      1. lname – containing last name

      2. fname – containing first name.

d) Using the SAS dataset **company**.sas7bdat and an appropriate SAS function, replace the middle part (4th and 5th digits) of the 9-digit SSN with zeros. Display your new dataset.

e) Display the value returned by a SAS function in the form like 01JAN1964: 5 semiyears after January 1, 1983. Use SAS default values if applicable.

4. Using DO loops, write a SAS program to compute the value of a 30-year investment that earns 8.8% annual interest, compounded monthly. Suppose you add $8000 capital at the beginning of each year. Save your result to a dataset called "Invest" in the HW3 library. Although you may use more variables in your program, your dataset should only include the following variables in the listed order: year, capital, accumulated_interest and accumulated_months. Display the HW3.Invest dataset (no observation numbers should be displayed).