Stat 604
Assignment 9 - SAS

You should have all of the information you need to complete this assignment by viewing Lessons SAS01 through SAS04.

Perform each of the exercises listed below. To the extent you have been trained to control it, your output should match that in the PDF file posted on eCampus. (You may use your own data set names and variable names unless specifically directed otherwise, but the data formatting and report layouts are expected to match the sample.) Download the file **tabled1x2016.sas7bdat** from the **Assignment Data Files** section on eCampus to a folder on your computer designated for your homework data files. Familiarize yourself with the data contained in the data set. The **tabled1x2016** data set was created from an Excel file downloaded from the Bureau of Labor Statistics. The numbers shown represent the number of seasonally adjusted jobs in thousands in each month listed by industry sector and state.

1. Begin your program with the required header. Include a comment box above all data and proc steps. These boxes should reference the step number from the assignment and contain a brief description of what the step does.
2. Create two libname statements between the program header and the rest of your program. One will assign a libref to the location of the homework data that you downloaded from eCampus. Use the access=readonly option to protect data in this library from accidentally being overwritten. Assign the second libref to another folder to which you have access to read and write. Using PC SAS it will be a folder on your computer such as the "My Documents" folder. If you are using SAS Studio, this will be a folder under My Folders. (NOTE: You will need to create the folder before assigning a libref to it if the folder does not exist.)
3. Specify a fileref that will be used to designate the output file for your PDF output.
4. Using the **tabled1x2016** data set as input, create a new data set in your permanent library (the second libref you assigned above). There were blank rows to improve readability in the original file. These need to be removed and other enhancements made to the data as described below. The new data set will have all of the variables from the original data set but will be different in the following ways:
    a. Get rid of the "blank" rows by removing observations that have a missing State value.
    b. Supply labels for all of the month variables so the full month name and the year will be displayed like "August 2015". (Note: Pay attention to the number of underscores in the month names. Many of them have two.)
    c. Create a new variable labeled Report Date that contains the date the data were downloaded from the BLS web site. Create the date as a SAS date constant and assign attributes to the variable so that it will be displayed as 10/08/2016.
    d. Create a variable labeled Annual Change that is the percentage change of August 2016 compared to August 2015. Use a formula like new value minus old value divided by old value to compute the percentage change. Research SAS help on formats as needed to find a format that will display your annual change as a percentage value with a width of 8 and 1 decimal place as shown in the output.
5. In the steps that follow you will be creating temporary data sets that are subsets of the enhanced jobs data set created in the previous step. The first temporary data set will contain observations that have an annual change of 10 percent or more positive or negative. Note: SAS considers missing numeric values to be less than any other actual value. This data set will only

contain the variables Industry, State, August 2015, August 2016, Report Date, and Annual Change.

6. Create a data set having observations where the number of jobs in August 2016 is at least 1 more than the number of jobs in July 2016. Remove all of the 2015 months from this data set along with the Report Date and Annual Change variables.
7. Create a temporary data set of service industries as indicated by the word services in the industry name. Remove observations that are missing the Annual Change value. This data set will have the variables Industry, State, August 2015, August 2016, Annual Change, and Report Date. Apply a format to the two August variables so the numbers are displayed with a thousands separator and no decimal place.
8. Create a temporary data set of the Southern states of Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Kentucky, Tennessee, Alabama, Florida, Georgia, South Carolina, North Carolina, Virginia and District of Columbia. Use an IN group to select most of the states listed. Some of the states (Tennessee, Alabama, and District of Columbia) have footnote numbers after some records. Use a LIKE operator for each of these states to ensure that values with or without the footnote number are included in the subset. Exclude the Government industry sector from this data set. Remove the 2015 months and the Report Date from this data set.
9. Open a PDF destination using the fileref created above. In order to save paper, we do not want to automatically start a new page for each table printed. Refer to the ODS PDF Tip Sheet on eCampus to find and use the ODS PDF option that will control page breaks as desired. The PDF file must not have bookmarks.
10. Print the descriptor portion of the cleaned up jobs data set created in step 4.
11. Print a listing of all temporary data sets that excludes the details of each data set.
12. Print the data portion of the temporary data set created in step 5. Ensure that the variables on your output appear in the same order as the sample output posted on eCampus. Make the **report date** variable the first variable in the list of variables to be printed but comment it out so that it does not actually get printed. Include the variable labels in your output. Remove observation numbers from your output to match the output posted on eCampus.
13. Print the data portion of each of the temporary data sets created in steps 6 – 8. Ensure the variable labels are included in the output and that the variables on your output appear in the same order as the sample output posted on eCampus. Include or remove observation numbers from your output to match the output posted on eCampus.
14. Convert the program and log to PDF files and submit them to WebAssign along with your SAS output.