# SAS Programming with SAS Enterprise Guide Tracy Stegmair, Texas Woman's University

# PROC IMPORT

Enterprise Guide does not offer the best code for import purposes. However, PROC IMPORT in Base SAS is relatively straight forward code:

• From Excel –

```
proc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.xlsx' DBMS=xlsx OUT = FA14 REPLACE;
run;
```

• From Text File -

```
proc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.txt' OUT = FA14 REPLACE;
run;
```

To import from Excel or a text file into SAS Enterprise Guide follow these steps:

- 1) Open SAS Enterprise Guide, highlight File on the Menu bar, and select Import Data.
- 2) The Open Dialog box will open. Navigate to the location of your file, highlight it, and click the **Open** button.
- 3) Now the Import Data Dialog box will open. The Specify Data step will appear first (below on left), and the Source data file should already be populated (this was done in step 2 above). Click the Next button.
- 4) The **Select Data Source** step will now open (below on right), so highlight the correct Excel worksheet to use if there are multiple ones. There is no need to go on, so click the **Finish** button.

Import Data fro	n 14_FA_Snapshot.xlsx	x	🛃 In	port Data	from 14_FA_Sna	apshot.xlsx	
<b>1</b> of 4 Spe	cify Data	<u>s</u> sas	2	of4 S	Select Data Sc	ource	<u>S</u> sas
The Import Data wi data analysis and m	rard is used to convert non-SAS data into a SAS data file which is required by porting.	other tasks for		lect range Use a <u>w</u> ork Enroll 14F			☑ First row of range contains field names
Source data file Location: File <u>p</u> ath: Data <u>typ</u> e:	Local File System C:\TAIR\14_FA_Snapshot.xlsx Excel Workbook			Sheet 1			Bename columns to comply with SAS naming conventions.
Output SAS data set <u>S</u> AS server: Library: D <u>a</u> ta set:	Local WORK _14_FA_Snapshot2	Browse		worksh Top-left			
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- 5) Note: There will be a slight difference when importing a text file. The **Select Data Source** step will not ask for a data worksheet but will ask how the data is delimited (tab, comma, etc.).
- 6) When you are finished your data will look something like the example shown at the top of the PROC SQL example on page 2.
- 7) Repeat the steps above if you want to import more data files.

# PROC SQL

PROC SQL allows you to join two or more data sets (both circled in red below) and create new fields.

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- 1) Click the **Query Builder** tab (circled in Blue above).
- 2) The Query Builder Dialog box will open. Be sure to rename your query in the **Query name** text box (circled in Blue below). Otherwise it will have the generic name "Query Builder."
- 3) The first thing to do is add any extra tables that you would like to use. Click the Add Tables button (circled in Red below). The Open Data dialog box will pop-up, so highlight the table you want to add and click the Open button. The new table will be listed below the first one in the Tables window (circled in Green below) and you can scroll down to locate it.
  - Note: The table will be named t1, t2, t3, etc. by SAS.
- 4) To join your tables, click the Join Table button (circled in Black below). The Table and Joins dialog box will open. If your field names in each table are the same, SAS will define your join for you already. If they are not the same than you will have to define them yourself. If you have to define the join yourself:
  - a) Highlight the field you want to join in t1 and drag it to the corresponding field in t2.
  - b) The **Join Properties** dialog box will open and ask if you want your join to be an inner, left, right, etc. join. Select the one you want and click the **OK** button.
- 5) When you are done creating your join click the Close button.

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6) Now drag and drop all the fields you would like to use in t1 and t2 from the left (circled in Green above) to the Select Data tab.

- 7) If you would like to filter your data, click the **Filter Data** tab (circled in Red below).
- 8) Drag and drop the field you want to filter on from the Tables window (circled in Green below) to just below the **Filter Data** tab.
- 9) The **New Filter** dialog box will open. The field that was dragged and dropped should be in the **Identifier** textbox. Select the operator you want to use from the **Operator** drop down box and enter the criteria in the **Value** text box. Click the **Finish** button when you are done.

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- 10) When you are finished adding fields or filters, click the **Run** button.
- 11) There should now be a new data set that looks something like the data below and a new query will have been created (circled in Red below).

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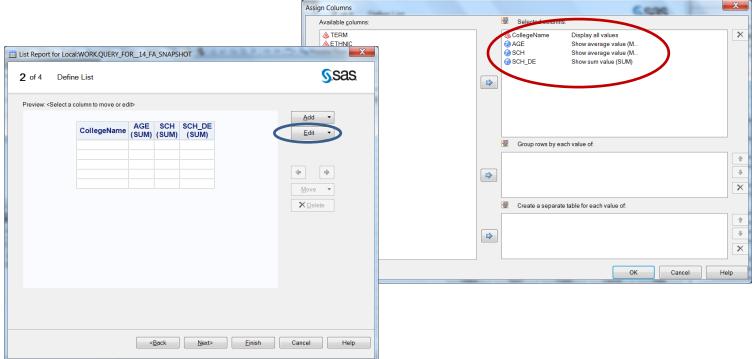
# PROC REPORT

PROC REPORT is one of the reporting tools that SAS offers. However, the Enterprise Guide version is fairly limited.

1) Select the data set you want to use, then click on the **Describe** drop down box (circled in Red below), and select **List Report Wizard**.

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- 2) The List Report dialog box will open. There will be an Edit button on the first screen if you want to filter your data. Click the Next button to move to the next screen. If you have a limited amount of fields than the wizard will already populate your report.
- 3) Highlight any of the fields you would like to delete and click the **Delete** button.
  - You can add fields by clicking the Add button.
  - You can also position a field underneath another field by highlighting it and clicking on the **Move** button. A drop down list will appear and offer the option to **Position Above** or **Position Below**. Select the one you want and it will give you a list of available fields to choose from.
- 4) The default summary field is SUM. To change it to another field like MEAN or MEDIAN select the Edit button (circled in Blue below) and select Assign Columns. The Assign Columns dialog box will open. Change all the fields to a new summary option (circled in Red below). Click the OK button.
- 5) If you have summary fields and want to add totals click the **Next** button. When you are done adding totals click the **Finish** button.



6) When you are finished you output should look something like this:

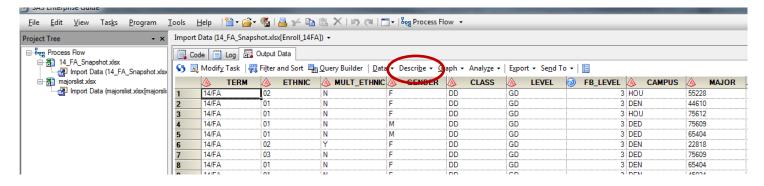
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7) To change or update the report you just created click the **Modify Task** button (circled in Red above).

### PROC TABULATE

PROC TABULATE is another reporting tool that SAS offers. The Enterprise Guide version is a great tool for generating code that can get complicated really quickly.

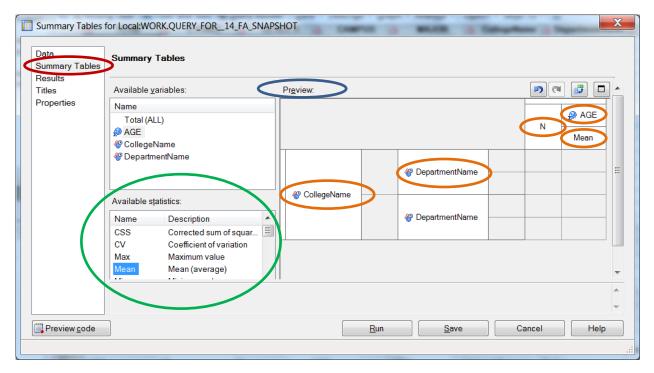
1) Select the data set you want to use, then click on the **Describe** drop down box (circled in Red below), and select **Summary Tables**.



- 2) The Summary Tables dialog box will open.
  - a. In the Data section (circled in Red below) of the dialog box drag the fields to the appropriate place on the right. Place summary fields under Analysis Variables and other fields under Classification Variables (both circled in Blue below).
  - b. You can also filter your data by clicking the Edit button (circled in Green below).

Summary Tables	for Local:WORK.QUERY_FOR_14_FA_SNAPSHOT
Data Summary Tables Results Titles Properties	Data source: Local:WORK.QUERY_FOR_14_FA_SNAPSHOT Task filter: CollegeName NOT = 'General'
	Variables to assign:       Iask ories:         Name       Analysis variables         TERM       AGE         ETHNIC       AGE         GENDER       CollegeName         CAMPUS       DepartmentName         MAJOR       Relative weight (Limit 1)         Pages       Frequency count (Limit 1)         Frequency count (Limit 1)       Frequency count (Limit 1)
	The variables that you assign to this role are character or discrete numeric variables that are used to divide the input data into categories. The statistics will be calculated on all selected analysis variables for each unique combination of
Preview <u>c</u> ode You must add at lea	Run     Save     Cancel     Help       st one variable to the table definition

- 3) When you are done with the data section click on the **Summary Tables** section (circled in Red below).
  - a. Now drag the **Available Variables** to the **Preview** screen (circled in Blue below). Note: I generally place Classification Variables in the rows section and Analysis Variables in the columns section. Classification Variables will default to N (counts). Analysis Variables will default to SUM. If you don't see the field you need go back to the **Data** section and add it.
  - b. To change N to percent of N or SUM to another analysis variables drag the appropriate variable from **Available Statistics** (circled in Green below) to the place on **Preview** screen where you want it.
  - c. To remove fields just drag them out of the Preview screen.



d. To change the field name labels or to get rid of them select the field name, right click on it (circled in Orange above) and Select **Heading Properties**. A dialog box will appear and you can delete or change the name as needed. Click **OK** button when you are done.

Heading Properties for DepartmentName	X
General Format Font	
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OK Cancel Ap	ply

4) When you are finished click the **Run** button.

5) When you are finished your output should look something like this:

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		Business and Economics	749	27.29
		Chemistry and Physics	121	21.69
		Dance	92	21.32
		English, Speech, and Foreign Language	114	25.04
4 III		Fashion and Textiles	174	22.10
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		Mathematics and Computer Science		23.49
		Music and Drama		23.47
efresh Disconnect Stop		Psychology and Philosophy		23.35
		Sociology and Social Work		26.65
Private OLAP Servers		Visual Arts		25.60
	Health Sciences	Communication Sciences and Disorders		25.29
		Dental Hygiene		24.00
		Health Studies		28.31
		Kinesiology		21.56
		Nutrition and Food Sciences		25.40
	Nursing	E 11 0 1		24.06
	Professional Education			23.86
		ProfEd-Interdepartmental	739	25.26

6) To change or update the report you just created click the **Modify Task** button (circled in Red above).

## Moving Code Over to Base SAS for Recurring Jobs

- 1) Open Base SAS (SAS 9.2 or 9.3) and under File on the Menu bar select New Program.
- 2) Go back to SAS Enterprise Guide and for every Table, Report, and Query you just created there will be a **Code** tab.
  - a. Double click on the created item (circled in Red below) and select the **Code** tab (circled in Blue below).
  - b. Copy and paste the code into Base SAS.

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Data Imported from 14_FA_Snapshotxls:	DATA=WORK.QUERY_FOR_14_FA_SNAPSHOT	<u> </u>
Data Imported from majorslist.xlsx		
QUERY FOR 14_FA_SNAPSHOT	;	
List Report	WHERE( CollegeName NOT = 'General');	
	VAR AGE;	
	CLASS CollegeName / ORDER=UNFORMATTED MISSING;	
4 11	CLASS DepartmentName / ORDER=UNFORMATTED MISSING;	
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- 3) Your finished product should look something like the screen shot below. Be sure to copy PROC IMPORT from page 1 of this Word document to make sure your code will import your data. Also be sure to change the data set names to match the data you imported (circled in Red below).
- 4) Click the **Run** button to run your code.

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Explorer  Contents of 'Work'	<pre>Bproc import DATAFILE = 'C:\TAIR\14_FA_Snapshot.xlsx' DBMS=xlsx OUT = FA14 REPLACE; run;</pre>	<b>^</b>
Fa14 Majorslist	<pre>Bproc import DATAFILE = 'C:\TAIR\majorslist.xlsx' DBMS=xlsx OUT = majorslist REPLACE; run;</pre>	
Profile Query_14fa	<pre>BPROC SQL; CREATE TABLE WORK.QUERY_14FA AS SELECT t1.TERM, t1.ETHNIC, t1.GENDER, t1.CAMPUS, t1.MAJOR, t2.CollegeName, t2.DepartmentNa t2 contooName, t1.AGE, t1.SOH, t1.SOH, DE FROM WORK.FA14 t1 INNER JOIN WORK.MAJORSLIST t2 ON (t1.MAJOR = t2.Major) WHERE t1.HBVEL2 = 'UG'; QUIT; BPROC TABULATE DAT = WORK.QUERY_14FP WHERE( CollegeName Nor = General'); VAR AGE; CLASS CollegeName / ORDER=UNFORMATTED MISSING; CLASS CollegeName / ORDER=UNFORMATTED MISSING; TABLE /* Row Dimension */ CollegeName={LABEL="College"}* DepartmentName={LABEL=""}, /* Column Dimension */ N={LABEL="Count"} AGE*Mean ;; RUN; Bproc report data=WORK.QUERY 14FA powd;</pre>	me,
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5) Your output will look like this (scroll down to see the PROC REPORT):

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Biology Business and Economics Chemistry and Physics Dance English, Speech, and Foreign Language	504 749 121 92	22.02 27.29 21.69 21.32
Biology Business and Economics Chemistry and Physics Dance English, Speech, and Foreign Language	504 749 121 92	22.02 27.29 21.69 21.32
Business and Economics Chemistry and Physics Dance English, Speech, and Foreign Language	749 121 92	27.29 21.69 21.32
Chemistry and Physics Dance English, Speech, and Foreign Language	121 92	21.69 21.32
Dance English, Speech, and Foreign Language	92	21.32
English, Speech, and Foreign Language		
	114	
	114	25.04
Fashion and Textiles	174	22.10
History and Government	172	26.75
Mathematics and Computer Science	171	23.49
Music and Drama	215	23.47
Psychology and Philosophy	376	23.35
Sociology and Social Work	267	26.65
Visual Arts	158	25.60
Communication Sciences and Disorders	226	25.29
Dental Hygiene	225	24.00
Example Editor - Untitled2 * Results	Viewer -	
	Psychology and Philosophy Sociology and Social Work Visual Arts Communication Sciences and Disorders Dental Hygiene Example	Psychology and Philosophy     376       Sociology and Social Work     267       Visual Arts     158       Communication Sciences and Disorders     226       Dental Hygiene     225