

Enrollment Management Utilities

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ABSTRACT

With the increased demand for data-driven decision-making in higher education, institutional researchers are required to provide data analyses that extend well beyond dashboards and descriptive statistics. Limited resources preclude IR professionals from writing research reports for all campus constituents. Enrollment Management Utilities (EMU) was designed to address these issues by allowing select users to access institutional data via a point and click environment to perform typical data manipulation and analyses used to create IR reports. A manual and online help system are available to explain how to perform each function and how to interpret the results. The system is free of charge to any institution of higher education that has a single user SAS license for SAS Base, SAS Stat, and SAS Graph. This session will present an overview of the program as well as a simple example of the use of the software.

INTRODUCTION

With the never-ending expansion of state and federal accountability reporting coupled with the rise in demand for institutional studies to inform decision-making, many institutional research offices are struggling to fulfill the mission of the office. Exacerbating this problem is the switch from mostly simple ad hoc data requests to more requests for in-depth analyses that may be beyond the institutional researcher's comfort level. While SAS offers all of the computing and statistical functions required for institutional researchers, there is a fairly large learning curve using SAS or other statistical packages due to the overwhelming array of statistical procedures to choose from.

Enrollment Management Utilities (EMU) is a point and click interface to SAS that was developed to address these issues. Only the statistical procedures and graph types frequently used in institutional research are included in the application. An online help system explains in simple terms what each procedure does, how to fill out the screens, and how to interpret the results. All examples are related to higher education to further simplify the use of EMU. In many instances the procedure output is modified for ease of interpretation. EMU also contains some analyses specific to higher education, such as At-Risk Student Locator, Student Flow, and crosstabs for continuous variables. Finally, EMU attempts to reduce errors while performing the more treacherous data processes such as importing and merging files. In short, EMU can get the novice IR professional up to speed and productive quickly, can assist the grizzled SAS veteran by handling the more mundane data tasks, and can reduce the office workload by allowing data savvy users to create their own reports using EMU.

GETTING STARTED

After downloading EMU and running the installer app, click on the silly looking EMU icon on your desktop. The following screen will appear:

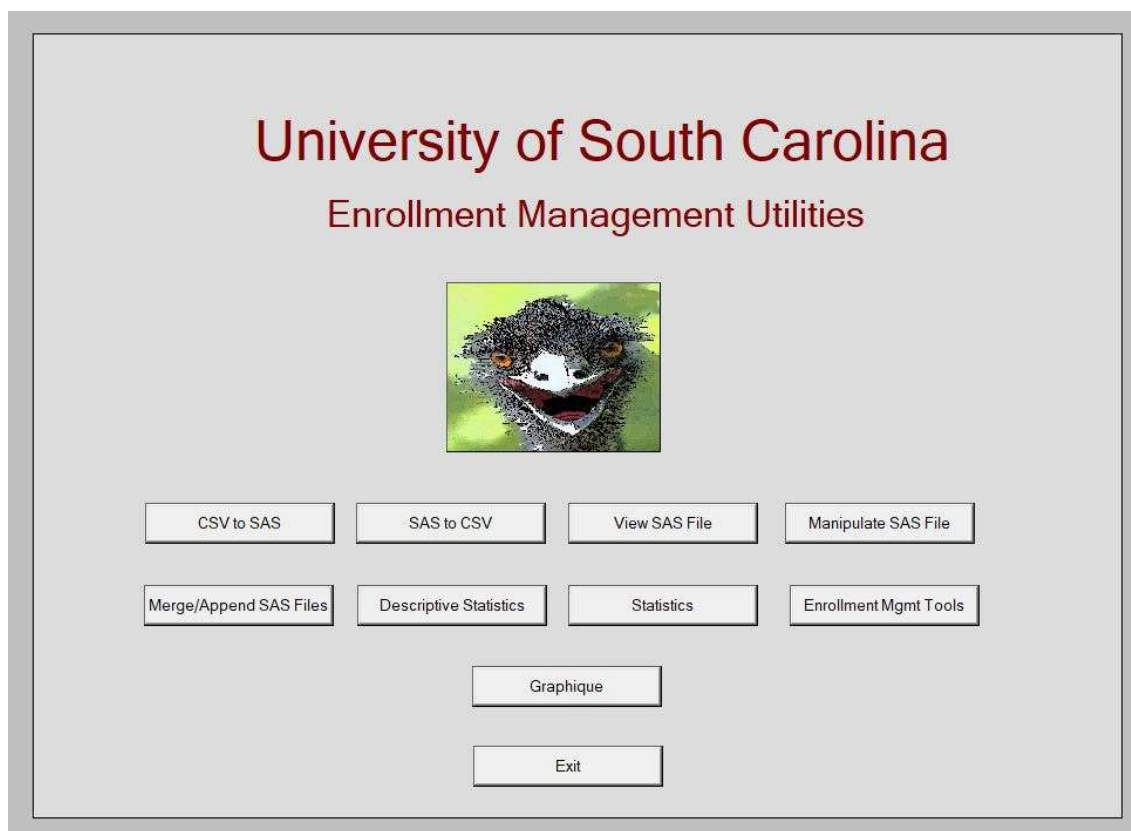


Figure 1 EMU Main Menu

DESCRIPTION OF AVAILABLE FUNCTIONS

CSV TO SAS

The less error prone method for importing Excel spreadsheets into SAS is to first save them as a CSV file. If you choose to import an Excel spreadsheet, EMU will first create a temporary CSV file, import the file to SAS, and then delete the temporary file. If more than one spreadsheet is available in the workbook, a menu will ask you to select which worksheets to import.

SAS TO CSV

This function is a simple method for creating CSV files from SAS files. As with all of the EMU functions, no libname or filename statements are required. Instead, the familiar PC browse function is used to select the file.

VIEW SAS FILE

The following options are available to assist the researcher in understanding the dataset:

- Display variable values – allows you to quickly determine if, for example, gender is coded as Male/Female or M/F.
- Display file in table format – allows you to view the file in Viewtable.
- Display variable names, lengths, and formats – provides data about the data via Proc Contents.

This function is available within many of the other screens.

MANIPULATE FILE

Manipulate is a way to quickly make simple modifications to a SAS dataset in EMU. The following options are available:

- Create AWE/AWEval – allows you to create a dichotomous variable that identifies whether or not a student has an appropriate academic work ethic to succeed at the institution given the student's academic ability.
- Create formatted variable from SAS date – create a variable with a date value, such as, September 2, 2015, without expertise in SAS date formats. The date value required for the Student Tracker submission file to the National Student Clearinghouse can also be generated.
- Create log/antilog variables – useful for salary equity and cost of attendance studies.
- Create standardized variables – allows you to transform a numeric variable to a standardized variable with the desired mean and standard deviation.
- Eliminate duplicate records – creates a dataset with only one observation for each value of a specified variable, such as Student_ID.
- Sort dataset – allows you to select a variable by which you can sort your dataset.
- Write SAS statements to modify datasets – This is a quick way to write a SAS program to modify your dataset. Your code can be saved and reused within EMU.

MERGE/APPEND SAS FILES

EMU attempts to eliminate many of the problems associated with merging files by monitoring the following:

- Different names of the variable to merge by (e.g., Student_ID in one file and ID in the other file) is automatically handled within EMU.
- Different lengths of character data variables contained in both files – EMU automatically defaults to the largest length to avoid truncation.
- Different formats for variables contained in both files – EMU will prompt you to select either character or numeric data type for the variables with conflicting formats and will then modify the files accordingly.
- Once the files are merged, table views of the two files to be merged and the resulting merged file are presented, which allows for spot checking the accuracy of the merge.

DESCRIPTIVE STATISTICS

This function computes simple descriptive statistics on the dataset and variables selected. The following options are available:

- Crosstabulation
- Frequency
- Means
- Univariate

STATISTICS

This function computes inferential statistics on the dataset and variables selected. The following options are available:

- ANOVA
- Chi-square

- Correlation
- Dependent t test
- Factor Analysis
- Independent t test
- Logistic Regression
- Regression
- Regression Discontinuity Plots
- Reliability/Confirmatory Factor Analysis

ENROLLMENT MANAGEMENT TOOLS

This section includes functions specific to institutional research/enrollment management. The following options are available:

- At-Risk Student Locator – as part of an early alert system, identifies subpopulations at-risk of dropping out or not graduating. For instance, perhaps, the engineering school thinks that students who are placed into a lower math course are less likely to succeed academically. At-Risk Student Locator will compare these students to other engineering students in terms of graduation and retention rates and will calculate the estimated net tuition lost due to the attrition of these students.
- Funnel Chart – enrollment management professionals expect to see funnel charts depicting the flow of students through the admissions process and can include any of the enrollment stages, such as started application, completed application, accepted, and enrolled.
- High School Report Card – is generally used to compare high schools on first-year college GPA minus first-year predicted college GPA. Students from high schools with higher first-year college GPAs compared to first-year predicted college GPAs will generally perform better than expected at this institution. You can also specify other variables for the report card, such as retention rate, graduation rate, percent of students who are Pell eligible, high school GPA, admissions test scores, etc.
- Matrix – these analyses in higher education generally involve two continuous variables that are broken into ten categories each. One variable's categories constitute the column labels, and the other variable's categories constitute the row labels. Each cell contains one or more statistics pertaining to its associated row and column. The classic example is a matrix with SAT categories as the column labels, high school GPA categories as the row labels, and retention rates displayed within each cell.
- PGPA Bias Investigator – this function can be used to look for subgroups that tend to earn higher first-year GPAs than predicted. If a large difference is found, this information should be taken into consideration during the admissions decision process.
- Random Sample Generator – creates a random sample for building statistical models or stratified random samples for survey research. The variables to stratify on and the size of the sample can be specified.
- Student Flow Chart – This type of band chart is useful in understanding the flow of students at the institution from year to year. A typical record in a student flow dataset has a variable denoting the year and a variable denoting the status of the student. The status generally includes:
 - Continuing from the previous year
 - New Freshman
 - New Transfer
 - Readmit

- Graduated last year
- Dropped out (enrolled last year, not enrolled this year, did not graduate)

GRAPHIQUE

Graphique is an easy to use graphics package for creating traditional bar, line, and pie charts, as well as producing enrollment management specific visuals. No knowledge of ODS graphics and the annotate procedure is necessary to create professional looking charts and graphs. The figure below illustrates the types of graphs available:

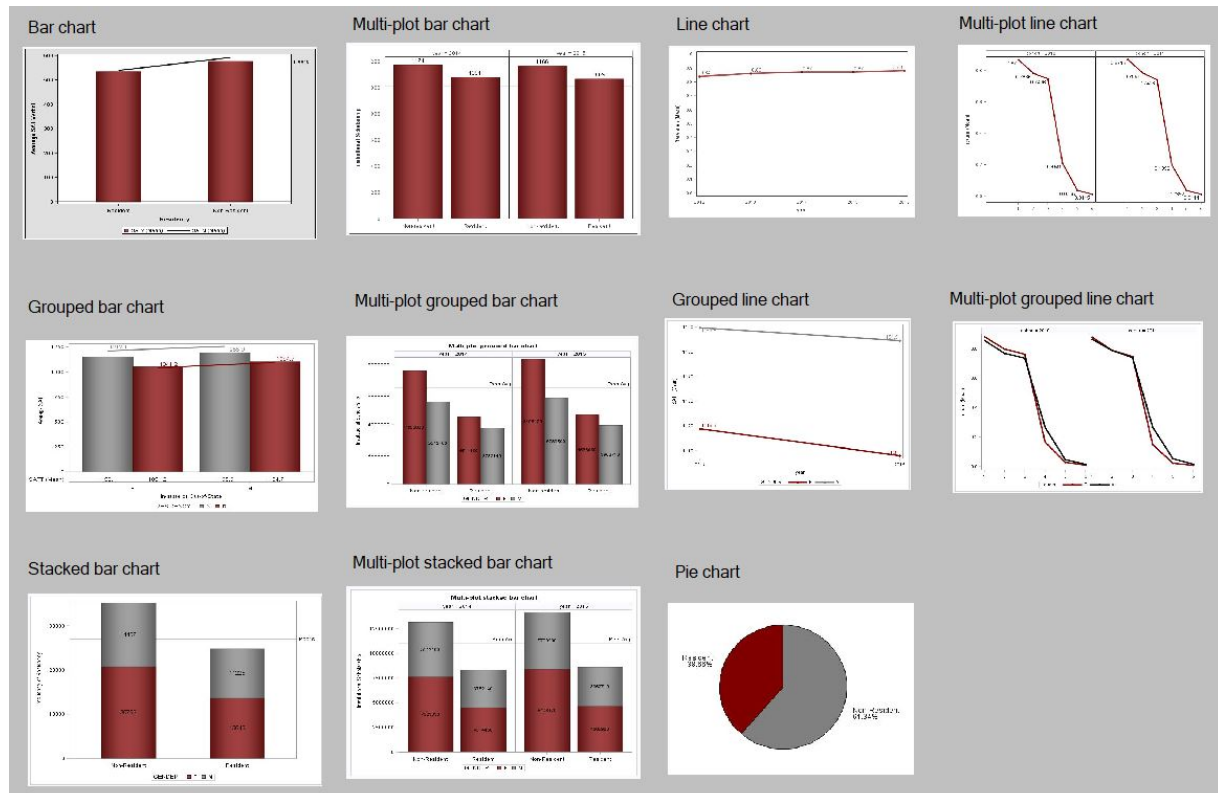


Figure 2 Graphique Graph Types

CONCLUSION

Enrollment Management Utilities is beneficial to the novice IR professional as well as to the experienced SAS user. In the beginning, we wrote SAS programs approximately 80% of the time and used EMU 20% of the time. With practice, we now use EMU for approximately 80% of our office projects. This system is written in SAS AF and the supporting code was written in SCL, SAS macro, SQL, and Microsoft scripting language. To run EMU requires SAS Base, SAS Stat, SAS Graph, version 9.3 or later, and requires a single user SAS license.