Advanced Programming in SAS

(Dunn Hall 207, F 4:15 pm-7:05 pm)

Instructor: Su Chen

Email: su.chen@memphis.edu (email is the best way to contact me)

Office: Dunn Hall 384 (Work Phone: 901-678-1145)

Office Hours: TR 1:30pm-2:30pm or by appointment.

Prerequisite: MATH4/6607 or equivalent knowledge of base SAS

Required Textbooks: There is no required book and handouts will be provided. To access the handouts for the course, you will need to use the E-Courseware system: https://elearn.memphis.edu/. Please bring the handouts to the class.

Suggested Book: Certification Prep Guide: Advanced Programming for SAS 9, Third Edition, by SAS Institute Inc.

Delwiche, L. D. and Slaughter, S. J. (2008). The Little SAS Book: a Primer, 4th ed. SAS Institute, Cary NC. ISBN: 978-1- 59994-725-9.

Course Objectives: In this class you will learn some advanced SAS programming topics with applications to statistical procedures. Some students will want to take this course to complement the statistics courses on their schedules. Others are interested in obtaining a Certification in Advanced SAS Programming by successfully completing an exam offered by SAS Institute. This course will help students prepare for the Advanced SAS Certification Exam (http://support.sas.com/certify/creds/ap.html#s1=1), however, it is not feasible to include all of topics covered on that exam. The goal of the course is not to teach the students everything they ever want to know about SAS to perform a rigorous analysis, but to achieve a familiarity and comfort level with SAS.

Course Topics: The following list of SAS topics will be covered in this course. Other topics may be added as necessary.

- Generate detail reports by working with a single table, joining tables, or using set operators in the SQL procedure
- Perform SQL queries and data management using PROC SQL
- Compare solving a problem using the SQL procedure versus using traditional SAS programming techniques.
- Create and use user-defined and automatic macro variables within the SAS Macro Language
- Interpret and write complex SAS macro programs
- Do Loop, PROC FORMAT
- SAS procedures for linear mixed models (longitudinal study/repeated measurements), robust regression, time series models, etc.

Homework/Quizzes: Homework assignments will be given weekly during each lecture. You are encouraged to submit your assignments in class and turn in a copy of your program(s) and the output

generated by the program(s), and any written conclusions you make before the end of each class. You MUST turn in the assignments before the end of the next day to the Dropbox in the E-courseware system and slide a hard copy under the door of my office before the Wednesday of next week. The lowest three homework assignments can be dropped.

Exam: There will be 2 in-class exams in total: one mid-term and one final exam. They are open-book, open-note exams.

Grading Policy: Grades will be calculated according to the following percentages:

Homework/Quizzes 35%	A = 90-100%
Midterm Exam 30%	B = 80-89%
Final Exam 35%	C = 70-79%
	D = 60-69%
	F = below 60%

Note: (1) Any questions regarding grading/scoring must be made within one week of the return of the exam or no change in the grade will be made.

(2) I will not curve your final grade, but I may curve each exam if necessary.

Make-up Policy: No make-ups will be given without written evidence of an official University excused absence. (See University Student Rules.) If no such notice is given, the rights to a make-up are forfeited. In addition (and also in accordance with University Student Rules), a written excuse must be presented upon return to class. Specifically, in the case of illness or injury, students are required to obtain a confirmation note from a health care professional affirming date and time of a medical office visit regarding the illness or injury.

Attendance: It is one lecture per week and thus I STRONGLY suggest that you make every attempt to not miss a single day of lecture. Assignments will be provided in hard copy in class. Falling behind in this course can be very detrimental to your grade.

Inclement Weather Policy:

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.
http://hss.memphis.edu//SyllabusGuidelines.html - Top%20of%20Page

Tentative Schedule of Topics:

Lectures	Dates	Topics
1	20-Jan	Intro to SAS: How SAS reads data
2	27-Jan	Manipulating string (character) values
3	3-Feb	Matching/Joining/Merging data sources using SAS statements
4	10-Feb	Matching/Joining/Merging data sources using Proc SQL
5	17-Feb	SAS procedures for linear mixed models
6	24-Feb	Manipulating string (character) values
7	3-Mar	EXAM 1
8	10-Mar	SPRING BREAK
9	17-Mar	Do Loops, Do While, Do Until processing
10	24-Mar	Create and use user-defined and automatic macro variables within SAS Macro Language
11	31-Mar	Interpret and write complex SAS macro programs
12	7-Apr	SAS procedures for robust regression
13	14-Apr	SAS procedures for time series models
14	21-Apr	Getting the macro language to perform a %DO loop