

STAT 440 - SAS Certification Preparation

Winter 2016

I. Catalog Description

STAT 440 SAS Certification Preparation (2)

Programming, data management, and data analysis in preparation for the Certified Base Programmer Exam offered by the SAS Institute. Topics include accessing data, creating data structures, managing data, generating reports, and handling errors. 2 lectures.

Prerequisite: STAT 330 or equivalent.

II. Required Background and/or Experience

Prerequisite: STAT 330 or equivalent.

Basic knowledge of statistics and the use of computers.

III. Expected Outcomes

The student should:

- A. Develop an understanding of the way that SAS processes data and runs various procedures.
- B. Master the programming syntax of topics covered on the Base SAS certification exam.
- C. Prepare to take the professionally administered Base SAS certification exam.

IV. Text and References

Text: *SAS Certification Prep Guide: Base Programming for SAS 9, Third Edition*, SAS Institute Inc., Cary, NC, 2011

References:

Delwiche, L.D. and Slaughter, S.J.: *The Little SAS Book: A Primer, Fifth Edition*, SAS Institute, Cary, NC, 2012.
SAS OnLine Documentation, Version 9, SAS Institute Inc.

V. Minimum Student Materials

None.

VI. Minimum University Facilities

Availability of computing facilities.

VII. Expanded Description of Content and Method

Content	Number of lectures
A. Overview of certification topics and SAS basics.....	2
1. Review of SAS programming basics	
2. Review of data	
3. Review of filenames and libnames	
B. Reading in basic raw data.....	2
1. Column input	
2. Fixed field	
3. Free-format	
4. SAS/ACCESS libname statments	
C. Massaging Data and how the data step works.....	4
1. Expressions	
2. Functions	
3. Date and time values	
4. Do loops, do while and do until	
5. Arrays and multi-dimensional arrays	
6. Compilation and execution phases, and the program data vector (PDV)	
D. Proc Steps.....	2
1. Sort	
2. Print	
3. Contents	
4. Format	
E. Reading in complicated data.....	3
1. Varying observations versus varying number of records	
2. Hierarchical files	
3. Line hold specifiers	
4. Variable length records	
F. Defining data sets.....	2
1. Subsetting	
2. Direct access	
3. By group processing	
4. Concatenating, interleaving, and merging	
G. Basic statistical procedures and reporting.....	2
1. Means	
2. Freq	
3. Summary	
4. HTML output	
H. Handling Errors.....	1
1. The Log	
2. Programming logic errors	
3. Syntax errors	
4. Data errors	
5. Debugging your programs	

Total 18

Method

Lecture with computer demonstrations of methods and problems, class discussion, supervised computer lab work, and in-class exercises. Material from references and additional problems supplementing the text.

VIII. Method of Evaluating Outcome

Programming homework assignments, quizzes, and examinations.