Course Title: SAS Intermediate Programming – the SQL Procedure
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Course Description:
• This course is for SAS programmers who want to expand their programming skills with the use of the SQL procedure (PROC SQL).

Course Prerequisites:
• SAS Programming Fundamentals or equivalent experience. Specifically, you should be able to:
  o code a DATA step to read from or write to a SAS data set
  o use SET and MERGE on existing SAS datasets
  o understand when and how to use functions such as INT, SUBSTR and SCAN
  o work with date values and functions
  o use arithmetic, comparison, and logical operators
  o control output by using labels and formats
  o invoke SAS procedures

Course Objectives:
• Upon completion, you will be able to
  o query and subset data from SAS data sets and relational tables
  o summarize and present data
  o Use joins, set operators, inline views and sub-queries
  o create and modify tables and views
  o replace multiple DATA and PROC steps with one SQL query

Textbook(s): none

Next Class Possibilities
• SAS Intermediate Programming: the Macro Facility

Instructor Notes:
• Expect to spend at least four hours a week outside of class to complete lab assignments. The platform we will use is browser-based, so no special software installation should be required

Topics covered
• Basic Queries
  o overview of the SQL procedure
  o specifying columns
  o selecting rows
  o using SAS functions
• Displaying Query Results
• presenting data
  o summarizing data

• SQL Joins
  o inner joins
  o outer joins
  o reflexive joins

• Subqueries
  o noncorrelated subqueries
  o in-line views

• Set Operators
  o the UNION operator
  o the OUTER UNION operator
  o the EXCEPT operator
  o the INTERSECT operator

• Creating Tables and Views
  o creating tables
  o creating views

• Advanced PROC SQL Features
  o using SQL procedure options