Reporting Techniques – the Language of SAS

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Duration: 14 – 16 hours (plus additional time for exercises)

Learning Overview:

This course provides Learners with in-depth techniques for generating reports and output using the Language of SAS Output Delivery System (ODS), REPORT and TABULATE procedures.

There are comprehensive exercises throughout to help reinforce your learning.

Learning Outcomes:

By the end of this course you will be able to:

1. Direct output to required destinations using ODS
2. Create list, summary and tabular reports with PROC REPORT
3. Generate enhanced summary tables with PROC TABULATE

Delivery Schedule:

On day 1 we invite join a short online welcome to meet your instructor and introduce you to our Digital Learning platform before getting you started on the course.

The course is delivered live online over 4 x 4 hour sessions.

In addition, you will also need to set aside time to complete the Hands-On exercises.

Each day finishes with an opportunity for you to join an open Q&A session with the instructor if you need any additional support.

Day 1	Welcome and Live Online Class 1	09:00 – 13:00 (GMT)
Day 2	Live Online Class 2	09:00 – 13:00 (GMT)
Day 3	Live Online Class 3	09:00 – 13:00 (GMT)
Day 4	Live Online Class 4	09:00 – 13:00 (GMT)

Pre-requisites:

To get the most out of this course it is expected that you should have attended the Fundamentals – the Language of SAS and the Intermediate – the Language of SAS courses (or comparable courses of study).

If not, we would advise that you have at least nine months experience of developing code in the language of SAS, including:

- Use of Global statements e.g. LIBNAME FILENAME and OPTIONS
- Access data sources including Datasets and external files
- Use of functions to transform character data e.g. SCAN, FIND and SUBSTR
- Use of functions to transform numeric data e.g. CEIL, INT, FLOOR and ROUND
- Use of functions to transform dates e.g DAY, MONTH, YEAR and INTCK
- KEEP and DROP to select variables
- IF and WHERE statements to select observations
- Conditional Processing with IF–THEN–ELSE
- Summarising data with the FREQ, MEANS and TABULATE procedures

For the hands–on practice activities in the course, you will need access to an environment that runs the programming Language of SAS. On our courses, we signpost you to some of the free tools available.

Check out the link below to review system requirements:

- [SAS® OnDemand for Academics](#)

Learning Modules:

Identifying ODS Objects (live online class)

Learning Objective: Describe Output Delivery System objects

- Describe ODS objects
- Identify ODS objects generated by procedures

Capturing ODS Outputs in datasets (live online class)

Learning Objective: Describe how to capture ODS output in a dataset

- Identify the Name, Label or Path using ODS Trace
- The ODS Output statement

ODS Output Destinations (live online class)

Learning Objective: Describe the Output Destination options

- The Default Output Destination
- Generating Listing Output
- The ODS HTML destination
- Directing Output to Different Files
- Generating Data Step Output

Styling HTML with PROC TEMPLATE (live online class)

Learning Objective: Explain how HTML Style Elements are defined and applied

- HTML Style Elements
- Using existing Style Templates
- Defining Styles and Applying Changes

ODS Options (live online class)

Learning Objective: Define options to alter and control ODS Output

- PROCTITLE and PROCLABEL statements
- SELECT and EXCLUDE statements
- Options to Control ODS Output

Accessing Excel Files (live online class)

Learning Objective: Describe options for reading from and writing to Excel files

- ODS HTML
- ODS CSVALL
- ODS TAGSETS.EXCELXP
- The ACCESS Engine
- Proc Import and Proc Export

PROC REPORT – Options & Default Options (live online class)

Learning Objective: Explain default and selectable options to control report appearance

- Default Options for report content
- Options to amend report appearance

PROC REPORT – Statements (live online class)

Learning Objective: Utilise statements to control report content

- Statements affect specific report items
- Column statement controls report content and order
- Define statement Usage Types and Attributes

PROC REPORT – Break and Rbreak (live online class)

Learning Objective: Generate Sub-Totals and Grand-Totals

- BREAK statement to generate Sub–Totals
- RBREAK statement to generate Grand–Totals

PROC REPORT – Computed Columns (live online class)

Learning Objective: Create and Display a Computed Column

- COLUMN statement
- DEFINE statement
- COMPUTE / ENDCOMP block

PROC REPORT – Define Statement Attribute Options (live online class)

Learning Objective: Control Column appearance

- LABEL, FORMAT and NOPRINT options
- ORDER= DATA | FORMATTED | FREQ options
- RIGHT, LEFT and CENTER options

PROC REPORT – Other Options (live online class)

Learning Objective: Define Column and Header size and spacing

- Underline and Space column headers
- Line and page spacing in LISTING output
- Controlling column and header widths
- Spacing between columns

PROC REPORT – Styling Output (live online class)

Learning Objective: Apply Style Options

- Summary of PROC REPORT styling techniques

PROC TABULATE – Customise Row & Column Headings (live online class)

Learning Objective: Control the appearance of Headings

- LABEL statements
- KEYLABEL statements
- TABLE statement
- Override Labels
- BOX option
- Removing Row and Column Headings

PROC TABULATE – Formatting Data Cells (live online class)

Learning Objective: Describe data format and order options

- FORMAT statement
- Format modifier in the TABLE statement
- Formatting options in the PROC and TABLE statements
- Output data in Formatted, Unformatted or Original order

PROC TABULATE – Calculating Percentages (live online class)

Learning Objective: Generate Count and Sum Percentages

- Count and Sum for the entire report or for a selected Classification variable.
- Count and Sum Percentages for a Row or Column
- Count and Sum Percentages for the Page Dimension of Classification variables and for the entire report.

PROC TABULATE – BY Group Processing (live online class)

Learning Objective: Create multiple tables

- BY statement
- TABLE statement
- Differences between these two methods

PROC TABULATE – Output Data Sets (live online class)

Learning Objective: Generate Output Data Sets

- Output Data Set
- What the variables and their values mean
- Differences between the Data Set and the Report

PROC TABULATE – Styling Output (live online class)

Learning Objective: Describe styling techniques to alter report presentation :

- PROC TABULATE
- CLASS
- VAR
- KEYWORD
- CLASSLEV