



Learn with Newtyne

Intermediate – the Language of SAS

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

Learning Overview:

Building on the learnings provided in the [Fundamentals](#) course, the Intermediate course provides Learners with an immediately useful armoury of new statements and functions.

There are mini quizzes and comprehensive exercises throughout to help assess and reinforce your learning.

Learning Outcomes:

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

1. Implement more advanced Data Step processing techniques to manage your data more efficiently.
2. Utilise functions, by group processing, user-defined formats, iterative processing and arrays.
3. Generate output in multiple different formats using the SAS Output Delivery System (ODS).

Delivery Schedule:

On day 1 we invite you to join a short online welcome to meet your instructor, introduce you to our Digital Learning platform and get you started on the eLearning modules of this course.

You will need 4 hours to complete the 4 eLearning modules with additional time required for exercises. We ask you to complete these modules before joining us for the online masterclass in the afternoon of day 1.

This is followed by 2 x 4 hour live online classes to complete your learning.

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 introduction to eLearning modules	09:00 – 10:00 (GMT)
Day 1	Live Online Masterclass to consolidate eLearning	13:00 - 17:00 (GMT)
Day 2	Live Online Class 1	09:00 – 13:00 (GMT)
Day 3	Live Online Class 2	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 course (or comparable course of study).

If not, we would advise that you have completed six months of developing code in the language of SAS, including:

- Building DATA and PROC steps
- Character, Numeric and Date functions
- KEEP and DROP to select variables
- IF and WHERE statements to select observations
- Conditional Processing with IF-THEN-ELSE
- Combining Data Sets vertically and horizontally
- 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:

Character Functions (eLearning)

Learning Objective: Describe how functions are used to perform character transformation including:

SUBSTR, SCAN, TRIM, COMPRESS, LEFT, RIGHT, CATX, INDEX, FIND, UPCASE, LOWCASE, PROPCASE and TRANWRD

Numeric Functions (eLearning)

Learning Objective: Describe how functions are used to perform numeric transformation including:

SUM, MEAN, MIN, MAX, ROUND, CEIL, FLOOR, INT

Date Functions (eLearning)

Learning Objective: Describe how functions are used to perform date transformation including:

TODAY, DATE, MDY, DAY, MONTH, YEAR, WEEKDAY, QTR, TIME / DATETIME, TIMEPART / DATEPART, INTCK / INTNX, YRDIF / DATDIF

Changing Data Types Using Functions (live online class)

Learning Objective: Describe how functions are used to change variable type

- Automatic character to numeric conversion
- INPUT Function to convert character values to numeric
- Automatic numeric to character conversion
- PUT Function to convert numeric values to character

Summarising Observations and Variables (live online class)

Learning Objective: Describe how to use the Data Step to summarise variables and observations using:

- RETAIN statement
- SUM Statement
- BY-Group processing

Iterative Processing (live online class)

Learning Objective: Describe how to iterative and conditional loops to iterate multiple times within a Data Step and manipulate your dataset structures:

- Create and execute DO Loops
- Conditional processing with DO UNTIL and DO WHILE
- Combine Iterative and Conditional DO Loops

Array Processing (live online class)

Learning Objective: Describe how to use arrays within a Data Step to temporarily link variables across observation

- Define an Array
- Use Array References
- Using Arrays with DO loops, to perform repetitive actions and to store temporary and existing variables

Transposing Data (live online class)

Learning Objective: Describe how to use a Data Step and the Transpose procedure to transpose data tables:

- Using Conditional Logic in a DATA Step
- Using PROC TRANSPOSE

User Defined Formats with PROC FORMAT (live online class)

Learning Objective: Describe how to use the Format procedure to create and save user-specific formats for use:

- Apply formats to your data
- Create your own formats and apply them to your data
- Create a format with data from a dataset

Output Delivery System (live online class)

Learning Objective: Describe the Output Delivery System (ODS) and some of the ODS destinations

- The Output Delivery System (ODS)
- Control output to ODS destinations
- Create Datasets from Procedures