

## SAS Macro Language

**Duration:** 2.0 days

*This Level IV course is for experienced SAS programmers who want to build complete macro-based systems using the SAS macro facility.*

### Course Description [\[ Click to register ONLINE \]](#)

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This course focuses on the components of the SAS macro facility and how to design, write, and debug macro systems. Emphasis is placed on understanding how programs with and without macro code are processed.

### Prerequisites

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Before attending this course, you should have completed the [SAS Programming II: Manipulating Data with the DATA Step](#) course or have equivalent knowledge. Specifically, you should be able to

- use a DATA step to read from or write to a SAS data set or external file
- use DATA step programming statements such as IF-THEN/ELSE, DO WHILE, DO UNTIL, and iterative DO
- use SAS data set options such as DROP=, KEEP=, and OBS=
- use character functions such as SUBSTR, SCAN, INDEX, and UPCASE
- form subsets of data using the WHERE clause
- create and use SAS date values and constants
- use SAS procedures such as SORT, PRINT, CONTENTS, MEANS, FREQ, TABULATE, and CHART.

### Course Contents

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#### Introduction to the Macro Facility

- purpose of the macro facility
- program flow
- course data

#### Macro Variables

- introduction to macro variables
- automatic macro variables
- macro variable references
- user-defined macro variables
- delimiting macro variable names
- macro functions

#### Macro Definitions

- defining and calling macros
- macro parameters

#### DATA Step and SQL Interfaces

- creating macro variables in the DATA step
- indirect references to macro variables
- retrieving macro variables in the DATA step
- creating macro variables in SQL

### Macro Programs

- conditional processing
- iterative processing
- global and local symbol tables

### Classroom Course Materials

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Students attend classroom courses in one of our public training centers. You receive a hardcopy of the course notes.