



**Gupta Programming, <http://www.SASSavvy.com>**

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*"Great class, e-guide and handouts! My supervisor told me that you are a wonderful presenter and speaker... I definitely agree!", WUSS 2012 Student*

## **Automating Tasks using SAS® Macro and Metadata Programming**

### **COURSE DESCRIPTION**

Ready to get the most out of SAS macros with a simple and logical approach to SAS macro and metadata programming? This unique course shows how the macro language serves as a dynamic character editor for SAS programs. Course examples show how macros can be used to standardize, automate, communicate, customize and create SAS code. From simple to complex real-world examples, we will break down the macro language into easily digestible chunks. Using macros saves time with metadata or data-driven processing and dynamic code generation. Attend with your challenging macro questions. References are made to my top 25 'must read' SAS papers. Each student receives the companion SAS e-guide, a \$24.95 value, which is a great reference tool for searching, cutting and pasting concise model SAS examples.

### **COURSE OUTLINE – Anatomy of SAS Macros e-Guide (Searchable PDF file)**

#### **BASIC MACROS**

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1. Basics of SAS Macros
2. Creating Macro Variables to store and replace text
  - 2.1 Scope of Macro Variables
  - 2.2 Using the %LET statement
  - 2.3 Using Macro Functions
  - 2.4 Using the Data Step
  - 2.5 Using PROC SQL
  - 2.6 With a suffix indicator
  - 2.7 Confirming Macro Variable Value

#### **ADVANCED MACROS**

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3. Referencing Macro Variables to substitute text
  - 3.1 In SAS Statements
  - 3.2 As Two or More Ampersands (&&)
  - 3.3 Within Macro Functions
  - 3.4 To Create SAS Code or SAS Statements
4. Writing Macros to automate tasks
  - 4.1 Using Positional Parameters
  - 4.2 Using Keyword Parameters
  - 4.3 Macros That Call Macros
  - 4.4 Summary Table Collection of Macros
5. Accessing Macros from Macro Library
6. Metadata Programming for Intelligent Processing
  - 6.1 Applications: Format Catalog, Variable Attributes, TLG Titles and Footnotes, DEFINE.PDF, File Management Utilities such as cutoff macro, TOC, Missing Values Adjustment, Code Generator

**Course Length:** 8-Hours Course, On-Line or On-Site