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2011

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SAS Analytics Curriculum

Featuring:
SAS® Statistical Analysis
SAS® Data Mining
SAS® Forecasting
JMP

What We Offer



Steve Dowse
Manager, SAS Education
Australia and New Zealand

At SAS Education, we strive to provide our customers with the highest level of customer care. We want your entire training experience to be as pleasant and informative as possible; from choosing training that fits your needs, to registering and attending the course. Our training can save you time and money by teaching you to effectively use SAS software to help you solve your business problems.

If you're ever not satisfied with your training experience, let us know and we will make things right. That is our guarantee at SAS Education. We know that your investment in SAS will return more than just the expected benefits, and we hope you'll turn to SAS Education to help you fully utilise the competitive advantage SAS can provide.

Public courses are taught at SAS training facilities around Australia and New Zealand. Our instructors deliver critical SAS knowledge and helpful tips using a combination of expertly designed lectures and software demonstrations, question-and-answer sessions and hands-on computer workshops for an interactive learning experience that is second to none.

Custom training services have the same quality content and instructional design as our public courses. This training is delivered at your convenience in a private setting of your choosing. Create customised training that is optimised for your team by selecting any course from our full curricula, combining course segments, or having new training written for you.

SAS e-Learning provides immediate access to award-winning training at your desktop 24/7. Be sure to check out the ever-expanding list of short e-Lectures as well as the dynamic and engaging multimedia e-Courses. SAS e-Learning allows you to train without travel time and cost.

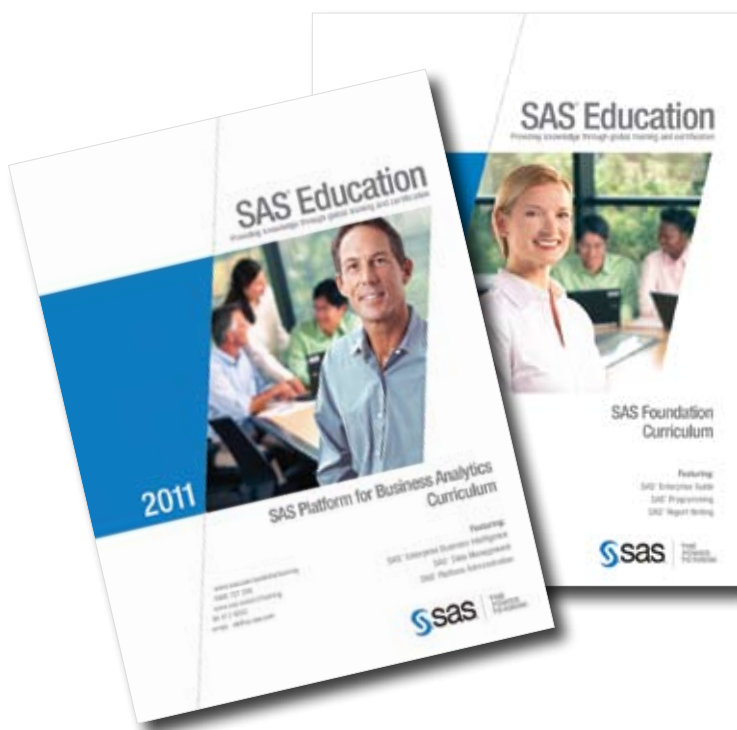
Business Knowledge Series is a unique partnership between SAS and external professionals who bring their real-world knowledge directly to you. The courses are authored by respected practitioners who use SAS to solve common business problems.

SAS Certification recognises excellence using SAS software. With growing, worldwide demand for professionals with a high level of SAS software knowledge, certification can help you distinguish yourself as a leading SAS professional.

For the most current information on what we offer, visit us on the Web at www.sas.com/australia/training

More Courses

Discover the other courses we offer for SAS Programmers and Business Analysts



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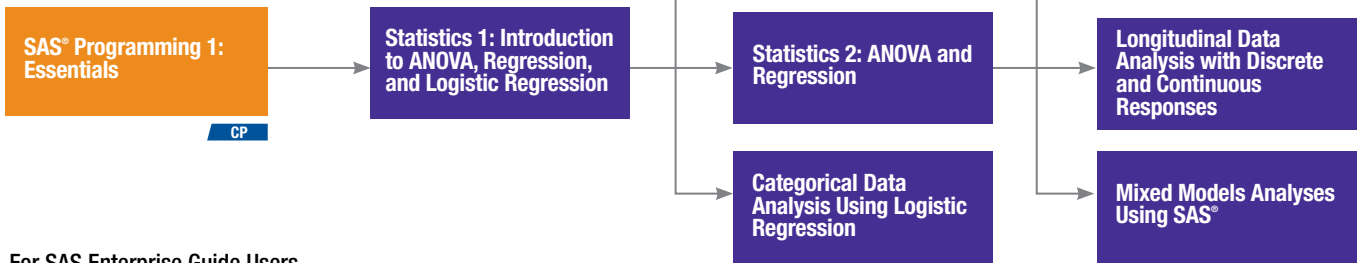
Statistical Analyst

I cleanse and prepare data for analysis as well as conduct and interpret simple to complex statistical data analyses.

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For SAS Programmers



For SAS Enterprise Guide Users



CP Preparation for SAS® Certification Exam

For JMP Users

See the **JMP Analyst** job role training path



Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression

This course is for SAS software users who perform statistical analyses using SAS/STAT® software. The focus is on t-tests, ANOVA, linear regression and logistic regression. This course (or equivalent knowledge) is a prerequisite to many of the courses in the statistical analysis curriculum.

Learn how to:

- generate descriptive statistics and explore data with graphs
- perform analysis of variance and apply multiple comparison techniques
- perform linear regression and assess the assumptions
- use diagnostic statistics to assess statistical assumptions and identify potential outliers in multiple regression
- use chi-square statistics to detect associations among categorical variables
- fit a multiple logistic regression model.

Who should attend: Statisticians, researchers, and business analysts who use SAS programming to generate analyses using either continuous or categorical response (dependent) variables

Delivery: Classroom

Duration: 3 days

Course code: ST192

Statistics 2: ANOVA and Regression

This course teaches you how to analyse continuous response data and discrete count data. Linear regression, Poisson regression, negative binomial regression, gamma regression, analysis of variance, linear regression with indicator variables, analysis of covariance, and mixed models ANOVA are presented in the course.

Learn how to use the ODS Graphics facility and the new SG graphical procedures in SAS 9.2 to:

- fit polynomial regression models using the REG procedure
- evaluate model fit and model assumptions using the REG, GLM, GENMOD, and UNIVARIATE procedures
- perform analysis of variance using the GLM procedure
- fit models with random effects using the MIXED procedure
- create a variety of statistical graphs.

Who should attend: Data analysts and researchers with some statistical training

Delivery: Classroom

Duration: 3 days

Course code: ST292

SAS® Enterprise Guide®: ANOVA, Regression, and Logistic Regression

This course is designed for SAS Enterprise Guide users who want to perform statistical analyses.

Learn how to:

- generate descriptive statistics and explore data with graphs
- perform analysis of variance
- perform linear regression and assess the assumptions
- use diagnostic statistics to identify potential outliers in multiple regression
- use chi-square statistics to detect associations among categorical variables
- fit a multiple logistic regression model.

Who should attend: Statisticians and business analysts who want to use a point-and-click interface to SAS

Delivery: Classroom

Duration: 3 days

Course code: EGBS42



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Multivariate Statistical Methods: Practical Research Applications

This course teaches how to apply a variety of multivariate statistical methods to research data.

Learn how to:

- perform multivariate analysis of variance (MANOVA) and multivariate regression analysis
- perform canonical correlation and discriminant function analyses
- perform principal components analysis
- perform exploratory and confirmatory factor analysis
- use structural equation modeling.

Who should attend: Statisticians, researchers, and data analysts with a strong statistical background

Delivery: Classroom

Duration: 3 days

Course code: AMUL92

Mixed Models Analyses Using SAS®

This course teaches you how to analyse linear mixed models using PROC MIXED. A brief introduction to analysing generalised linear mixed models using PROC GLIMMIX is also included.

Learn how to:

- analyse data (including binary data) with random effects
- fit random coefficient models and hierarchical linear models
- analyse repeated measures data
- obtain and interpret the best linear unbiased predictions
- perform residual and influence diagnostic analysis
- deal with convergence issues.

Who should attend: Statisticians, experienced data analysts, and researchers with sound statistical knowledge

Delivery: Classroom

Duration: 3 days

Course code: AGLM92

Categorical Data Analysis Using Logistic Regression

This course focuses on analysing categorical response data in scientific fields. The SAS procedures addressed are PROC FREQ, PROC LOGISTIC, and PROC GENMOD. The course is not designed for predictive modelers in business fields.

Learn how to:

- recognise when logistic regression is appropriate
- write code in the LOGISTIC procedure for binary, ordinal, and nominal logistic regression
- create effect plots and odds ratio plots using ODS Statistical Graphics
- create logit plots and use the FREQ procedure for preliminary analyses
- use automatic model building options in PROC LOGISTIC
- assess models for fit and influential observations using PROC LOGISTIC
- create ROC curves for measuring sensitivity and specificity
- perform exact and conditional logistic regression with PROC LOGISTIC
- analyse repeated and clustered data using GEE's in the GENMOD procedure.

Who should attend: Biostatisticians, epidemiologists, social scientists, and physical scientists who analyse categorical response data

Delivery: Classroom

Duration: 3 days

Course code: CDAL92

Longitudinal Data Analysis with Discrete and Continuous Responses

This course is for scientists and analysts who want to analyse observational data collected over time. It is not for SAS users who have collected data in a complicated experimental design; they should take the *Mixed Models Analyses Using SAS®* course instead.

Learn how to:

- create individual and group profile plots and sample variograms
- use PROC MIXED to fit a general linear mixed model and a random coefficient model
- plot information criteria for models with selected covariance structures
- generate diagnostic plots in PROC MIXED
- fit a binary or ordinal GEE model in PROC GENMOD
- compute GEE deletion diagnostic statistics in PROC GENMOD
- fit a generalised linear mixed model in PROC GLIMMIX.

Who should attend: Epidemiologists, social scientists, physical scientists, and business analysts

Delivery: Classroom

Duration: 3 days

Course code: LONG92

Advanced and Specialty Courses

Applied Clustering Techniques

Design and Analysis of Probability Surveys

Statistical Graphics with ODS

Multilevel Modeling of Hierarchical and Longitudinal Data Using SAS®

Statistical Process Control Using SAS/QC® Software

Survival Analysis Using the Proportional Hazards Model

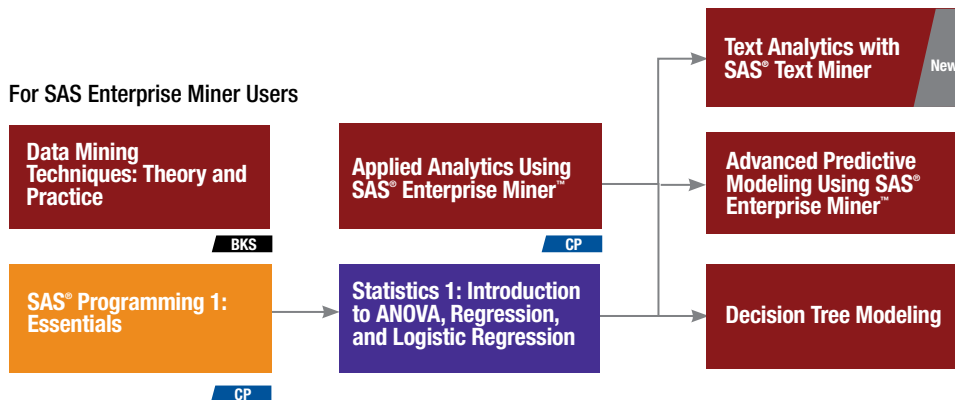


Data Miner

I'm responsible for extracting information from large databases to construct data segments and predictive models. I use SAS Enterprise Miner, SAS Credit Scoring, SAS Text Miner, or write SAS code.

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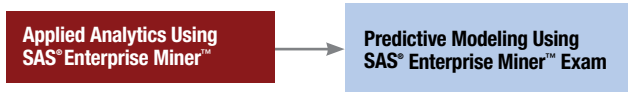
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CP Preparation for SAS® Certification Exam

BKS Business Knowledge Series

SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™



Applied Analytics Using SAS® Enterprise Miner™

This course covers the skills required to assemble analysis flow diagrams using the rich tool set of SAS Enterprise Miner for both pattern discovery (segmentation, association, and sequence analyses) and predictive modeling (decision tree, regression, and neural network models).

Learn how to:

- define a SAS Enterprise Miner 5 project and explore data graphically
- modify data for better analysis results
- build and understand predictive models like decision trees and regression models
- compare and explain complex models
- generate and use score code
- apply association and sequence discovery to transaction data
- use other modeling tools like rule induction, gradient boosting, and support vector machines.

Who should attend: Data analysts, qualitative experts, and others who want an introduction to SAS Enterprise Miner

Delivery: Classroom, e-Course

Duration: 3 days (24 hours for e-Course)

Course code: AAEM61

Decision Tree Modeling

This course covers tree-structured predictive models and the methodology for growing, pruning, and assessing decision trees. In addition, this course discusses many of the auxiliary uses of trees such as exploratory data analysis, dimension reduction, and missing value imputation.

Learn how to:

- build tree-structured models including classification trees and regression trees
- use the methodology for growing, pruning, and assessing decision trees
- use decision trees for exploratory data analysis, dimension reduction, and missing value imputation.

Who should attend: Predictive modelers and data analysts who want to build decision trees using SAS Enterprise Miner software

Delivery: Classroom

Duration: 2 days

Course code: DMDT61

Predictive Modeling Using Logistic Regression

This course covers predictive modeling using SAS/STAT software with emphasis on the LOGISTIC procedure. This course also discusses selecting variables, assessing models, treating missing values, and using efficiency techniques for massive data sets.

Learn how to:

- use logistic regression to model an individual's behavior as a function of known inputs
- handle missing data values
- tackle multicollinearity in your predictors
- assess model performance and compare models.

Who should attend: Modelers, analysts, and statisticians who need to build predictive models, particularly models from the banking, financial services, direct marketing, insurance, and telecommunications industries

Delivery: Classroom

Duration: 2 days

Course code: PMLR92

Survival Data Mining: Predictive Hazard Modeling for Customer History Data

This advanced course identifies the benefits and pitfalls of using survival analysis for business intelligence.

Designed for data analysts, it covers both theoretical justification of various survival data mining methods and their practical implementation using SAS software.

Learn how to:

- build models for time-dependent outcomes derived from customer event histories
- account for competing risks, time-dependent covariates, censoring, and truncation
- use techniques to model current status data and to evaluate the predictive performance of the model.

Who should attend: Predictive modelers, data analysts, and statisticians

Delivery: Classroom

Duration: 3 days

Course code: BMCE

Text Analytics with SAS® Text Miner

In this course, you will learn to use SAS Text Miner to uncover underlying themes or concepts contained in large document collections, automatically group documents into topical clusters, classify documents into predefined categories, and integrate text data with structured data to enrich predictive modeling endeavors.

Learn how to:

- identify topics in a document collection
- classify documents based on derived or user-supplied topic definitions
- extract a subset of documents with term-based and string-based query filters
- address problems from the areas of forensic linguistics, document categorisation, and information retrieval.

Who should attend: Statisticians, business analysts, market researchers who incorporate free-format textual information in their analyses; managers of large document collections who must organise and select documents using data mining; students of data mining who want to learn about text mining

Delivery: Classroom

Duration: 2 days

Course code: DMTXT

Data Mining Techniques: Theory and Practice

Explore the inner workings of data mining techniques and how to make them work for you. Students are taken through all the steps of a data mining project, beginning with problem definition and data selection, and continuing through data exploration, data transformation, sampling, portioning, modeling, and assessment.

Learn how to:

- use a data mining methodology
- build and use decision trees and neural networks for modeling and scoring
- use survival analysis and create survival curves.

Who should attend: Business analysts, their managers, and statisticians

Delivery: Classroom

Duration: 3 days

Course code: BDMT61

Advanced and Specialty Courses

Administering SAS® Enterprise Miner™

Advanced Analytics for Customer Intelligence Using SAS®

BKS

Applying Survival Analysis to Business Time-to-Event Problems

BKS

Credit Scorecard Development Implementation

BKS

Customer Segmentation Using SAS® Enterprise Miner™

BKS

Data Preparation for Data Mining

Development of Credit Scoring Applications Using SAS® Enterprise Miner

Exploratory Analysis for Large and Complex Problems

BKS

Extending SAS® Enterprise Miner™ with User-Written Nodes

Managing SAS® Analytical Models Using SAS® Model Manager

Mining Textual Data Using SAS® Text Miner for SAS®

BKS

Net Lift Models: Optimising the Impact of Your Marketing Efforts

BKS

Neural Network Modeling

Web Analytics and Web Intelligence Using SAS®

Recommended Certifications

SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™



Forecaster

I'm responsible for developing forecasting models to empower the organisation to make informed decisions. I write SAS programs, use the Time Series Forecasting System, or SAS Forecast Studio.

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Forecasting One-Time Series with Possible Regressors

Forecasting Using SAS®
Software: A Programming
Approach

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BKS Business Knowledge Series

Large-Scale Forecasting

Forecasting Using SAS®
Forecast Server Software

SAS® Programming 1:
Essentials

Using SAS® High-
Performance Forecasting
Software

CP

Forecasting Using SAS® Forecast Server Software

This course prepares you to generate large volumes of forecasts automatically using the SAS Forecast Studio interactive interface.

Learn how to:

- automatically create and fit custom forecast models to large-scale time series data sets
- identify series that do not have acceptable forecast accuracy
- refine forecast models to improve forecast accuracy
- reconcile hierarchical forecasts
- produce reports using stored processes
- generate forecast data sets for deployment
- accommodate data updates in large-scale time series data sets.

Who should attend: Forecasters and analysts in any industry, including retail, financial services, manufacturing, and pharmaceuticals

Delivery: Classroom

Duration: 2 days

Course code: FSTU31

Using SAS® High-Performance Forecasting Software

This course teaches you how to make accurate forecasts quickly and automatically using the SAS Forecast Server procedures, giving you the power to confidently plan your business operations.

Learn how to:

- process time series data
- automate the large-scale forecasting process
- add custom models and selection lists to a model repository
- create event variables to use as inputs to forecast models
- produce, assess, and modify forecasts.

Who should attend: Experienced forecasters and business analysts who want to learn to develop scripts in the SAS Forecast Server programming language to build, maintain, and refine a forecasting system

Delivery: Classroom

Duration: 3 days

Course code: HPF92

Forecasting Using SAS® Software: A Programming Approach

This course teaches analysts how to use SAS/ETS® software to create forecasting models, evaluate the model for accuracy, and forecast future values using the model.

Learn how to:

- build simple forecast models
- build advanced forecast models for autocorrelated time series and for time series with trend and seasonality
- build forecast models that contain explanatory variables.

Who should attend: Scientists, engineers, and business analysts who have the responsibility of forecasting for their organisations

Delivery: Classroom

Duration: 3 days

Course code: FETSP

Advanced and Specialty Courses

Advanced Topics in Applied Econometrics

BKS

Business Forecasting Using SAS®:
A Point-and-Click Approach

Introduction to Applied Econometrics

BKS



Market Researcher

I conduct market research and then analyse and interpret the results. I write SAS programs or use SAS Enterprise Guide, SAS Enterprise Miner, SAS Marketing Automation, and SAS Marketing Optimisation.

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For SAS Programmers



For SAS Enterprise Guide Users



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BKS Business Knowledge Series

Applied Clustering Techniques

This course looks at the theoretical and practical implications of a wide array of clustering techniques currently available in SAS. The techniques considered include cluster preprocessing, variable clustering, k-nearest-neighbor clustering, k-means clustering, hierarchical clustering, and fuzzy clustering.

Learn how to:

- prepare and explore data for a cluster analysis
- distinguish among many different clustering techniques, making informed choices about which to use
- evaluate the results of a cluster analysis
- determine the appropriate number of clusters to retain
- profile and describe clustered observations
- score observations into clusters.

Who should attend: Intermediate or senior level statisticians, data analysts, and data miners

Delivery: Classroom

Duration: 2 days

Course code: CLUS92

Design of Experiments for Direct Marketing

This course teaches you how to design marketing experiments with more than one factor and how to maximise the information that is gleaned from a marketing campaign.

Learn how to:

- determine the appropriate sample size for your tests
- build efficient experimental designs that generate as much information as possible for minimum cost
- identify challenges associated with analysing experimental designs
- test as many factors as possible in a given campaign
- apply well-known experimental design practices to direct marketing efforts.

Who should attend: Business analysts and market researchers

Delivery: Classroom

Duration: 2 days

Course code: DOEF92

Advanced and Specialty Courses

Categorical Data Analysis Using Logistic Regression

Maximising Campaign Efficiency with SAS Marketing Optimisation

Multivariate Statistical Methods: Practical Research Applications

Predictive Modeling Using Logistic Regression

Web Analytics and Web Intelligence Using SAS®

BKS

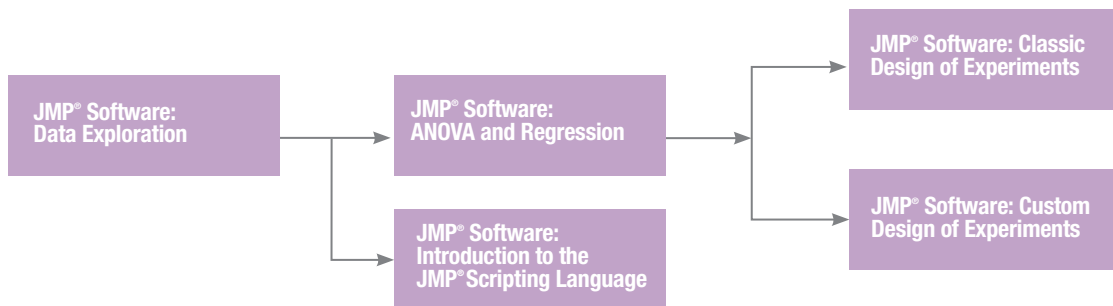


JMP® Analyst

I use JMP software to dynamically visualise statistical data analyses.

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JMP® Software: ANOVA and Regression

This course teaches how to analyse data with a single continuous response variable using analysis of variance and regression methods. You learn how to perform elementary exploratory data analysis (EDA) and discover natural patterns in data. Important statistical concepts such as confidence intervals are also introduced.

Learn how to:

- compare two means using a t-test
- generate and interpret an analysis of variance to compare more than two means
- analyse relationships between continuous variables using simple and multiple linear regression models
- perform an analysis of covariance to incorporate continuous and categorical predictors
- evaluate assumptions in statistical hypothesis testing.

Who should attend: Analysts and researchers with some statistical knowledge

Delivery: Classroom

Duration: 2 days

Course code: JANR8



JMP® Software: Classic Design of Experiments

This course teaches you how to design and analyse experiments. Designed experiments can help optimise the process response or identify the vital few factors that drive your product or process. The course emphasises the principles of experimental design and includes screening designs and response surface designs.

Learn how to:

- explain the fundamental principles of designed experiments
- generate and analyse full factorial, fractional factorial, split-plot and screening designs, including designs with blocking factors
- create and analyse classic response surface designs
- use the custom design tool.

Who should attend: Anyone who would like to understand and improve process design, such as engineers, scientists and Six Sigma practitioners

Delivery: Classroom

Duration: 2 days

Course code: JDRS8

JMP® Software: Data Exploration

This course is designed as an important first step for those who want to use JMP to manage, analyse, and explore data.

Learn how to:

- navigate the JMP interface
- manage data effectively in JMP
- explore data by using JMP software's extensive graphical capabilities
- create and manage reports.

Who should attend: Anyone who wants to increase their knowledge and use of JMP to explore data

Delivery: Classroom, e-Course

Duration: 1 day

Course code: JDEX8

JMP® Software: Custom Design of Experiments

This course offers a fresh perspective about designing experiments through state-of-the-art features in JMP. The course specifically focuses on the principles of designing an experiment and how to utilise all of them to achieve an optimal design.

Learn how to:

- use custom design for any experiment
- choose appropriate criterion for optimal design
- effectively and efficiently test factor effects or predict responses
- augment existing experiments to address new questions
- design and analyse experiments with hard-to-change factors
- eliminate noise from nuisance factors
- find best factor settings to achieve desired response levels.

Who should attend: Directors, managers, engineers, scientists, technicians, and analysts working in discovery, research, development, and quality assurance or control, as well as Black Belts working on Six Sigma projects

Delivery: Classroom

Duration: 2 days

Course code: JMDOE8

JMP® Software: Introduction to the JMP® Scripting Language

This course demonstrates how to extend JMP software's functionality using the JMP Scripting Language (JSL) to automate routine procedures, extend or create new procedures, and customise reports.

Learn how to:

- use the basic elements in JSL
- use messages, functions, and expressions to create new data tables and columns, control analyses, and capture or modify reports
- create and use dialogs to adapt script behavior
- save JMP scripts as custom menu or toolbar items to automate routine analyses and reporting.

Who should attend: Anyone familiar with JMP who wants to learn the JMP Scripting Language

Delivery: Classroom

Duration: 2 days

Course code: JSCR8

Advanced and Specialty Courses

JMP® Software: Analysis of Dose-Response Curves

JMP® Software: Introduction to Categorical Data Analysis

JMP® Software: Measurement Systems Analysis and Variation Reduction

JMP® Software: Process Control Design Using SPC

JMP® Software: Stability Analysis

JMP® Software: Statistical Quality Control

Mixture Design of Experiments Using JMP®

SAS® Global Certification

A World of Opportunity



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Earn **global recognition** for your SAS expertise.
Distinguish yourself in today's competitive job market.

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