SAS® Education
Providing knowledge through global training and certification

2011

Featuring:
Training by Job Role
SAS® Certification
Conferences and Events

www.sas.com/training
Since 1976, SAS has delivered powerful business analytics solutions that help SAS users uncover the full potential of their data. Year after year, we promise to help our customers make better, fact-based decisions. We back up that promise with an unyielding commitment to quality that runs consistently throughout our organization – with the finest training and technical support possible. Our aim is to make your organization more successful, now and well into the future.

SAS Education has trained hundreds of thousands of customers in the past 35 years. We continue to create and revise courses in our extensive curriculum to offer SAS users the most timely and complete SAS training in the world. We hope that you’ll choose to experience the benefits of SAS training in 2011.

As always, thank you for using SAS.

Jim Goodnight
CEO

SAS® Education Takes You Where You Want to Go

When you choose SAS Education, you make the best investment of your time and money. As the world leader in business intelligence and analytical software, SAS improves performance and provides insight to 45,000 business, government and university sites in more than 100 countries. Wherever in the world your staff are, you can be assured that world-class education and training from SAS Education is available.

We are the recognized leader in delivering the most comprehensive, state-of-the-art SAS training in the industry.

Engaging with SAS Education gives you:

**Firsthand SAS® Knowledge**
Nobody knows SAS software and its advantages better than SAS personnel. And nobody has more information on new and pending developments.

**World-Class Instructors**
SAS instructors are recognized for their outstanding teaching skills and as thought leaders in their areas of instruction. Every SAS instructor has earned a SAS Certified Professional credential. In addition, they undergo rigorous, internal certifications on a chapter-by-chapter basis before teaching your course.

**Expert Instructional Design**
Our goal is to transfer knowledge and develop applicable skills. To achieve this, our courses are carefully designed using a combination of comprehensive course notes, lectures as well as software demonstrations, question-and-answer sessions, and hands-on computer workshops.

**Customizable Content**
Our experts will work closely with you to tailor a training path based on your individual needs. Our assessments will determine how you can get the help you need to excel in your job.

**Rapid SAS® Deployment**
With courses at all skill levels, we meet you at your level of knowledge. After your first course, you will be productive with SAS software. Deploying SAS software has never been faster or easier.

**Flexibility on All Levels**
Our customizable courses can be delivered how and where you need them. Over the Web or in person, at your premises or in one of our high-tech training centers, we can tailor our training to meet your needs.

**Long-Term Customer Relationships**
We are proud of the long-term relationships we have built with our customers. Your continued and future success is our highest priority.

LEARN MORE OR REGISTER: Contact your local SAS® Education office, see page 45.
### Job Roles and Course Descriptions

#### SAS® Foundation
- 6  ■  Programmer/Analyst
- 9  ■  Report Writer

#### SAS® Enterprise Business Intelligence
- 10  ■  Business User
- 11  ■  BI Content Developer
- 13  ■  BI Applications Developer
- 14  ■  Project Manager

#### SAS® Data Management
- 15  ■  Data Integration Developer
- 17  ■  Data Architect
- 18  ■  Data Quality Steward

#### SAS® Analytics
- 19  ■  Statistical Analyst
- 22  ■  Market Researcher
- 23  ■  Operations Researcher
- 24  ■  JMP® Analyst
- 26  ■  Data Miner
- 28  ■  Forecaster
- 29  ■  Six Sigma Professional
- 31  ■  Performance Excellence Manager

#### SAS® Administrators
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- 32  ■  Enterprise Guide® Administrator
- 33  ■  Platform Administrator
- 35  ■  Solutions Administrator

### What We Offer
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### Learn More or Register

Contact your local SAS® Education office, see page 45.
What We Offer

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 utilize the competitive advantage SAS can provide.

Larry Stewart
Vice President of SAS Education

Public courses are taught at SAS training facilities around the globe. 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 customized training that is optimized for your team by selecting any course from our full curricula, combining course segments, or having new training written for you.

Live Web classes bring instructor-led training directly to your desktop. Using a Web browser and telephone, you can interact with an instructor, who guides your learning and answers your questions in real time.

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 recognizes 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/training.

Training Locations

New York

Paris

London

Sydney

Tokyo
Our custom-made courses, workshops and seminars are affordable, flexible and ideal for small or large groups.

You choose:
- Course topics: tailored to your needs or have a standard course delivered just for your staff
- Course data: standard course data can be provided or your own data can be used
- Dates: to suit your project timescales
- Location: your premises, a SAS Training Center or a third-party location.

If you would like training at your premises but do not have suitable training equipment, we can provide a setup service upon request.

Our custom-made courses combine lectures, software demonstrations, hands-on computer workshops and course notes.

We deliver:
- SAS accredited instructor
- Tailored course notes and exercises
- Hands-on workshops
- Post-course evaluation

To book your custom event, simply contact your local SAS Education office (see location listing on page 45).
Join the top minds in analytics and colleagues from all over the world for an international series of conferences that will cover all the key areas associated with analytics: data mining, text mining, forecasting, optimization, statistical analysis, predictive analytics and more.

Analytics2011, formerly M2010 Data Mining Conference, is the premier event for analytical professionals – and it’s now become a series. Drawing on 14 years of history, Analytics2011 will offer events in the US and other premier locations around the world. The US offering will be held October 24-25 in Orlando at the JW Marriott and Ritz Carlton. Additional dates and international locations will be announced at a later date.

Learn from visionary keynote speakers, insightful session speakers with real-world case studies and hands-on software training. Join hundreds of your peers to experience the best in career networking and professional development.

Don’t miss the Analytics Conference Series – coming soon to a location near you!
What if you could accelerate your potential?

**You can with SAS Certification.**

Earning the only globally recognized credential from SAS can set you, your team and your organization apart from the competition.

SAS Certification:
- helps managers select qualified professionals
- can increase individual and work group productivity
- supports world-class organizations with a metric to attract the brightest and retain the best employees

**Accelerate your potential by earning SAS Global Certification credentials.**

www.sas.com/certify

“Our business is based on well-educated employees ... From the customer's point of view, the SAS Certification is documented proof of the high knowledge level of the professionals from HMS Analytical Software. And for our employees, SAS Certification is confirmation of their SAS expertise.”

Andreas Mangold
Managing Director,
HMS Analytical Software GmbH,
Germany

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**Get SAS Certified with these credentials:**

Experience is a critical component to becoming a SAS Certified Professional. The diagrams below illustrate available credentials and training options that can help you prepare for the required examinations.

**SAS Certified Base Programmer for SAS®9**

- SAS® Programming 1: Essentials [pg. 7]
- SAS® Programming 2: Data Manipulation Techniques [pg. 7]

**OR**

- SAS® Certification Review: Base Programming for SAS®9 [pg. 6]

Be an experienced programmer with knowledge of the five exam content areas.

**SAS Certified Advanced Programmer for SAS®9**

- SAS® Certified Base Programmer for SAS®9
- SAS® Certified Advanced Programmer for SAS®9

**AND**

- SAS® Macro Language 1: Essentials [pg. 7]
- SAS® SQL 1: Essentials [pg. 7]
- SAS® Programming 3: Advanced Techniques and Efficiencies [pg. 8]

**SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™**


**SAS® Certified Platform Administrator for SAS®9**

- SAS® Platform Administration: Fast Track [pg. 33]

**SAS® Certified Data Integration Developer for SAS®9**


**SAS® Certified BI Content Developer for SAS®9**

Creating Business Intelligence for Your Organization: Fast Track [pg. 17] → SAS® BI Content Development for SAS®9 Exam

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Subscribe to Education’s newsletter at support.sas.com/training/news

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Learn from visionary keynote speakers, insightful session speakers with real-world case studies and hands-on software training. Join hundreds of your peers to experience the best in career networking and professional development.

Don't miss the Analytics Conference Series – coming soon to a location near you!

Analytics Conference Series

www.sas.com/analyticsseries

October 24–25, 2011
JW Marriott & Ritz Carlton
Orlando, FL
(Fomerly the Data Mining Conference)
For SAS Programmers

No prior programming experience

SAS® Programming Introduction: Basic Concepts  
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SAS® Programming 1: Essentials  
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SAS® Programming 2: Data Manipulation Techniques  
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SAS® Enterprise Guide® for Experienced SAS® Programmers  
pg. 7

For SAS Enterprise Guide Users

SAS® Enterprise Guide® 1: Querying and Reporting  
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SAS® Enterprise Guide® 2: Advanced Tasks and Querying  
pg. 7  
SAS® Enterprise Guide® 3: ANOVA, Regression, and Logistic Regression  
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Advanced and Specialty Courses

Data Cleaning Techniques  
Health Care Data and the SAS® System  
SAS® Certification Review: Base Programming for SAS®
SAS® Functions by Example  
SAS® Macro Language 2: Developing Macro Applications

Recommended Certifications

SAS® Certified Base Programmer for SAS®
SAS® Certified Advanced Programmer for SAS®

Please find more information about SAS Certification on page 5.
SAS® Enterprise Guide® 1: Querying and Reporting

This course is for business analysts and managers who do not have SAS programming experience but need to access, manage, and summarize data from different sources, and present results in tables and graphs. This course focuses on using the menu-driven tasks in SAS Enterprise Guide. Although you can write, submit, and generate SAS programming code using SAS Enterprise Guide, this course does not teach the SAS programming language.

Learn how to:
- access and manipulate local and remote data of various types
- create queries that filter and summarize data, compute new columns, and join multiple tables
- create frequency and tabular reports
- create interactive graphs
- automate output results.

Who should attend: Business analysts and data managers who want to use the menu-driven tasks in SAS Enterprise Guide

Level I: Beginner
Delivery: Classroom, e-Course
Duration: 2 days (16 hours for e-Course)
Course code: EG1

SAS® Enterprise Guide® 2: Advanced Tasks and Querying

This course focuses on using the Query Builder within SAS Enterprise Guide, including manipulating character, numeric, and date values; converting variable type; and building conditional expressions using the Expression Builder. This course also addresses efficiency issues, such as joining tables and using a single query to group, summarize, and filter data.

Learn how to:
- use tasks to transpose, stack, rank, and create a random sample of your data
- use functions to convert data type from character to numeric and from numeric to character
- use conditional logic in the Query Builder to create new columns
- use multiple value parameters.

Who should attend: Non-programmers with SAS Enterprise Guide experience, as well as experienced programmers with SAS Enterprise Guide experience

Level II: Fundamental
Delivery: Classroom
Duration: 2 days
Course code: EG2

SAS® Enterprise Guide® for Experienced SAS® Programmers

This course introduces experienced SAS programmers to SAS Enterprise Guide as an interface to write and submit code, as well as use the point-and-click tasks to generate queries, reports and graphics.

Learn how to:
- write, edit and submit SAS programs in SAS Enterprise Guide
- use point-and-click tasks and wizards to access data and create queries, reports and graphics
- customize task output by modifying the code that is generated by SAS Enterprise Guide
- use the concept of SAS Enterprise Guide Project to combine SAS programs with point-and-click functionality, including automated exporting and scheduled updates.

Who should attend: Experienced SAS programmers who want to learn the point-and-click functionality of SAS Enterprise Guide, including the intricacies of using it as a primary programming interface

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: EGSP42

SAS® Macro Language 1: Essentials

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 macro code are processed.

Learn how to:
- perform text substitution in SAS code
- automate and customize the production of SAS code
- conditionally or iteratively construct SAS code
- use macro variables and macro functions.

Who should attend: Experienced SAS programmers who have a sound understanding of DATA step processing and who want to write SAS programs that are reusable and dynamic

Level IV: Expert
Delivery: Classroom, e-Course
Duration: 2 days (16 hours for e-Course)
Course code: MAC1
Certification: This course is suggested preparation for the SAS® Advanced Programming for SAS®9 exam.

SAS® Programming 1: Essentials

This course is for users who want to learn how to write SAS programs. It is the entry point to learning SAS programming and is a prerequisite to many other SAS courses. If you do not plan to write SAS programs and you prefer a point-and-click interface, you should attend the SAS® Enterprise Guide® 1: Querying and Reporting course.

Learn how to:
- navigate the SAS windowing environment
- read various types of data into SAS data sets
- validate and clean SAS data sets
- create SAS variables and subset data
- combine SAS data sets
- create and enhance listing and summary reports.

Who should attend: Anyone getting started writing SAS programs

Level II: Fundamental
Delivery: Classroom, e-Course
Duration: 3 days (24 hours for e-Course)
Course code: PRG1
Certification: This course is suggested preparation for the SAS® Base Programming for SAS®9 exam.

SAS® Programming 2: Data Manipulation Techniques

This course is for those who need to learn SAS DATA step programming techniques for processing, controlling, and manipulating SAS data sets. The course builds on the concepts that are presented in the SAS® Programming 1: Essentials course and is not recommended for beginning SAS software users.

Learn how to:
- control SAS data set input and output
- combine SAS data sets
- summarize, read, and write different types of data
- perform DO loop and SAS array processing
- transform character, numeric, and date variables.

Who should attend: Business analysts and SAS programmers

Level III: Intermediate
Delivery: Classroom, e-Course
Duration: 3 days (24 hours for e-Course)
Course code: PRG2
Certification: This course is suggested preparation for the SAS® Base Programming for SAS®9 exam.
SAS' Programming 3: Advanced Techniques and Efficiencies

This course is for SAS programmers who prepare data for analysis. The comparisons of manipulation techniques and resource cost benefits are designed to help programmers choose the most appropriate technique for their data situation.

Learn how to compare various SAS programming techniques that enable you to:
- control memory, I/O, and CPU resources
- create and use indexes
- combine data horizontally and vertically
- use hash and hiter DATA step component objects, arrays, and formats as lookup tables
- compress SAS data sets
- sample your SAS data sets.

Who should attend: Experienced SAS programmers
Level IV: Expert
Delivery: Classroom, e-Course
Duration: 3 days (24 hours for e-Course)
Course code: PRG3
Certification: This course is suggested preparation for the SAS® Advanced Programming for SAS®9 exam.

SAS' Programming Essentials for Experienced SAS® Enterprise Guide® Users

This course is for experienced SAS Enterprise Guide® users who want to gain extra value from the product by understanding the code that it generates and methods of enhancing that code. The course will serve as a transition into the programming world of SAS and serves as a prerequisite for the SAS® Programming 2: Data Manipulation Techniques course.

Learn how to:
- analyze the way in which SAS Enterprise Guide and SAS programs work together
- evaluate the structure and syntax of a SAS program
- access and manage data using the DATA step
- customize task output by modifying the code that is generated by SAS Enterprise Guide.

Who should attend: Experienced SAS Enterprise Guide® users
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: EGP142

SAS' Programming Introduction: Basic Concepts

This course teaches you how to write simple SAS programs. The course is a subset of the SAS® Programming 1: Essentials course. If you do not plan to write SAS programs and prefer a point-and-click interface to SAS, you should attend the SAS® Enterprise Guide® 1: Querying and Reporting course.

Learn how to:
- plan and write simple SAS programs to solve common data analysis problems
- create simple list and summary reports
- define new data columns (variables)
- execute conditional code
- navigate the SAS windowing environment.

Who should attend: Beginning computer users who want to write simple SAS programs
Level I: Beginner
Delivery: Classroom, e-Course
Duration: 2 days (16 hours for e-Course)
Course code: INTRO

SAS’ SQL 1: Essentials

This course teaches you how to process SAS data using Structured Query Language (SQL).

Learn how to:
- query and subset data
- summarize and present data
- combine tables, including complex joins and merges
- create and modify table views and indexes
- replace multiple DATA and PROC steps with one SQL query.

Who should attend: SAS programmers and business analysts
Level III: Intermediate
Delivery: Classroom, e-Course
Duration: 2 days (16 hours for e-Course)
Course code: SQL1
Certification: This course is suggested preparation for the SAS® Advanced Programming for SAS®9 exam.

Join us for training in Sao Paulo, Brazil
### SAS® Report Writing 1: Using Procedures and ODS

This course teaches you how to create detailed tabular, summary, and listing reports. You also learn how to send report output to the major Output Delivery System (ODS) destinations.

**Learn how to:**
- use PROC REPORT to generate tabular detail reports, detail reports with subtotals and grand totals, and detail reports with computed columns
- generate summary reports based on GROUP, ACROSS, or CLASS variables using PROC REPORT and PROC TABULATE
- insert appropriate summary lines into reports
- send report output to the RTF, PDF, and HTML destinations
- change reports using ODS options and style overrides.

**Who should attend:** SAS programmers, data managers, report writers, and analysts who must generate reports with the REPORT procedure and the TABULATE procedure and who are familiar with basic SAS procedure syntax and logic

**Level III:** Intermediate
**Delivery:** Classroom
**Duration:** 3 days
**Course code:** RPT1

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### SAS/GRAPH® 1: Essentials

This course teaches you how to produce high-quality presentation graphics using SAS/GRAPH software.

**Learn how to:**
- design graphs that describe their data in the most appropriate fashion
- customize default graph elements such as axes and legends
- apply annotations that supplement the features available with SAS/GRAPH procedures
- deliver graphs in multiple formats, such as static image files and client-generated images.

**Who should attend:** SAS users who must generate graphs using SAS program code in batch or noninteractive execution environments such as SAS Stored Processes, or have the need to produce a large quantity of graphs with minimal user interaction

**Level III:** Intermediate
**Delivery:** Classroom
**Duration:** 3 days
**Course code:** GRP1

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### Advanced and Specialty Courses

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### e-Lecture Series

- SAS® Programming 1
- SAS® Report Writing 1

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### Recommended Certifications

- SAS® Certified Base Programmer for SAS®9

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Report Writer

I’m responsible for performing queries and generating reports. I write SAS programs or use SAS Enterprise Guide to perform these tasks.

www.sas.com/paths/rw
Business User

I access existing information as well as create my own reports and analyses using point-and-click applications. I use SAS Add-In for Microsoft Office, SAS Web Report Studio, and the SAS Information Delivery Portal.

www.sas.com/paths/bu

Advanced and Specialty Courses

Accessing SAS® from Microsoft Office Applications
Personalizing the SAS® Information Delivery Portal
Using SAS® Web Report Studio

SAS® Business Intelligence Reporting 1: Essentials
This course teaches how to access reports and analyze data using several of the business user applications in the platform for SAS Business Analytics.

Learn how to:
- identify the various types of reports
- work with SAS analyses
- interact with multidimensional data
- access SAS data sources
- create reporting presentations.

Who should attend: Business users
Level I: Beginner
Delivery: Classroom
Duration: 2 days
Course code: SBU1

SAS® Business Intelligence Reporting 2: Additional Topics
This course expands on the knowledge learned in the SAS® Business Intelligence Reporting 1: Essentials course and provides additional information for using several of the business user applications in the platform for SAS Business Analytics.

Learn how to:
- build and enhance SAS reports on the Web using advanced features
- access different types of data sources and run advanced SAS analyses in Microsoft Office applications
- share reports across your organization.

Who should attend: Business users
Level II: Fundamental
Delivery: Classroom
Duration: 2 days
Course code: SBU2

LEARN MORE OR REGISTER: Contact your local SAS® Education office, see page 45.
BI Content Developer

I understand my organization’s data and the applications I need to create reports and analyses for myself and others in my organization. I use SAS Information Map Studio, SAS BI Dashboard, and SAS Enterprise Guide for the creation of stored processes. I may also use SAS OLAP Cube Studio and SAS Visual BI (powered by JMP software).

www.sas.com/paths/bic

Advanced and Specialty Courses

Creating BI Dashboards Using SAS® 9.2
Creating Information Maps Using SAS® 9.2
Creating Stored Processes Using SAS® 9.2
Introduction to SAS® Applications for Business Intelligence and Data Integration
SAS® Enterprise Guide® 1: Querying and Reporting
SAS® Visual BI: Dynamic Data Visualization
What’s New in SAS® 9.2
Business Intelligence

Recommended Certification

SAS® Certified BI Content Developer for SAS®9

Please find more information about SAS Certification on page 5.
Creating Business Intelligence for Your Organization 2: Additional Topics

This course expands on the knowledge learned in the Creating Business Intelligence for Your Organization 1: Essentials course and provides advanced techniques for building SAS Information Maps, SAS Reports, SAS Stored Processes, and SAS BI Dashboards.

Learn how to:
- create and exploit dynamic value selection
- build advanced information maps using SAS Information Map Studio
- build, schedule, and distribute advanced reports
- produce advanced stored processes able to create dynamic data sources
- build advanced SAS BI Dashboard applications
- consolidate information into a business reporting application.

Who should attend: Business content developers
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: SBA2
Certification: This course is suggested preparation for the SAS® Bi Content Development for SAS® 9 exam.

Designing, Tuning, and Maintaining SAS® OLAP Cubes

This course teaches students how to use the SAS OLAP Environment to build, tune, and maintain multidimensional cubes.

Learn how to:
- access requirements and examine options for building efficient OLAP cubes
- create and set security on SAS OLAP cubes
- extend the functionality of the cube using both wizards and the Multidimensional Expressions (MDX) language
- tune a SAS OLAP cube and perform cube maintenance
- use an OLAP cube in reporting applications.

Who should attend: Business content developers
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: SBAOLAP

SAS® Education courses are available around the world. Join us for training in...

Beijing, China

Copenhagen, Denmark

San Francisco, US
BI Applications Developer
I’m responsible for building, implementing, and customizing applications. I use SAS development applications such as SAS/AF®, SAS® AppDev Studio™, and SAS/IntrNet®.

www.sas.com/paths/bi

Advanced and Specialty Courses
- Creating Web Applications Using SAS® Stored Processes
- SAS/AF® Software: Application Development 1
- SAS/AF® Software: Application Development 2
- SAS® Web Tools: Advanced Dynamic Solutions Using SAS/IntrNet Software
- SAS® Web Tools: Static and Dynamic Solutions Using SAS/IntrNet Software

Customizing SAS® Web Applications
This course provides information on how to manage and customize SAS Web applications including SAS Web Report Studio and the SAS Information Delivery Portal.

Learn how to:
- create a customized theme
- change default preferences
- administer the Public Kiosk
- manage common elements in SAS Web Report Studio.

Who should attend: BI applications developers
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SBIADCWA
Project Manager

I’m responsible for managing the strategy, objectives, and tasks for a SAS project. I have a high-level understanding of SAS technologies and a detailed knowledge of project management methodologies. Also, I am involved in implementing our Business Intelligence Competency Center (BICC).

www.sas.com/paths/pm

Maximizing Technology and Resource Investment with a BI Competency Center

This course teaches you how to establish and evolve a Business Intelligence Competency Center (BICC) in your organization. This course provides an overview, guidelines for assessing your BI environment, and a road map to establish a BICC specific for your organization.

Learn how to:
- identify the role and benefits of a BICC
- determine required resources, skills, and funding model
- apply a BI maturity model to benchmark your organization’s information management practices
- understand the role of a BICC in supporting your information management practices and BI strategy
- develop a road map to establish and evolve a successful BICC
- understand and apply best practices and expert opinion.

Who should attend: Those who are responsible for aligning BI efforts with organizational objectives such as BI and/or analytics directors; directors or executives who deploy BI in their environment or improve the business value from the existing BI environment

Level III: Intermediate
Delivery: Classroom
Duration: 1 day
Course code: BICCMAX

Join us for training in Heidelberg, Germany
**Data Integration Developer**

I collect, store, and cleanse data in preparation for reporting and analysis. I use applications such as SAS Data Integration Studio and the SAS Data Quality Solution. I may also use SAS Information Map Studio and OLAP techniques as well as write SAS code.

[www.sas.com/paths/did](http://www.sas.com/paths/did)

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**Advanced and Specialty Courses**

- Designing, Tuning, and Maintaining SAS® OLAP Cubes
- Introduction to SAS® Applications for Business Intelligence and Data Integration
- What’s New in SAS® 9.2 Data Integration

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**Recommended Certifications**

- SAS Certified Base Programmer for SAS®9
- SAS Certified Advanced Programmer for SAS®9
- SAS Certified Data Integration Developer for SAS®9

Please find more information about SAS Certification on page 5.

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**SAS® Data Integration Studio: Fast Track**

This intensive training course provides accelerated learning for data integration developers. This course is for individuals who are comfortable with learning large amounts of information in a short period of time.

**Learn how to:**

- This fast track course covers the same topics as SAS® Data Integration Studio 1: Essentials and SAS® Data Integration Studio 2: Additional Topics.

**Who should attend:** Data integration developers

**Level IV:** Expert

**Delivery:** Classroom

**Duration:** 5 days

**Course code:** DIFT

**Certification:** This course is suggested preparation for the SAS® Data Integration Development for SAS®9 exam.
Accessing Data in the SAS® Scalable Performance Data Server
This course introduces the SAS Scalable Performance Data Server and provides hands-on experience accessing and creating SPD Server data from SAS.

Learn how to:
• use the SPD Server LIBNAME engine
• use the SPD Server SQL pass through facility
• write SAS code to optimize the utilization of SPD Server resources
• use SAS Enterprise Guide to access SPD Server data (Self-Study)

Who should attend: BI content developers and SAS programmers
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: DISPDU

SAS® Data Integration Studio 1: Essentials
This course introduces SAS Data Integration Studio and includes topics for registering sources and targets; creating and deploying jobs; and working with transformations.

Learn how to:
• register source data and target tables
• create jobs and explore the functionality of the Process Designer
• work with many of the various transformations
• document and deploy jobs
• use Impact Analysis and job performance statistics
• build a SAS OLAP cube and SAS Information Map (self-study).

Who should attend: Data integration developers and data integration architects
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: DI2
Certification: This course is suggested preparation for the SAS® Data Integration Development for SAS®9 exam.

SAS® Data Integration Studio 2: Additional Topics
This course expands on the knowledge learned in SAS® Data Integration Studio 1: Essentials and provides additional information on setting up change management, working with slowly changing dimensions, as well as status handling and change data capture.

Learn how to:
• set up change management
• enhance table relationships using integrity constraints, key, and indexes
• work with slowly changing dimensions
• create custom transformations with the Transformation Generator Wizard
• administer SAS Data Integration Studio
• include data quality techniques (self-study).

Who should attend: Data integration developers
Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: DI2
Certification: This course is suggested preparation for the SAS® Data Integration Development for SAS®9 exam.

Join us for training in Mumbai, India
Data Architect
I design the architectures and methodologies required for ETL processing, schema development, and data quality.

www.sas.com/paths/dia

Data Integration Architecture and Design Warehouse Architecture and Design Principles

This course provides broad coverage of the architecture and detailed physical design of a data warehouse, including the storage, management, and exploitation of data in an integrated information architecture.

Learn how to create the architecture and designs for an integrated information architecture, including:

• the Enterprise storage layer of a data warehouse, based on the most common physical models used
• OLAP data marts
• data mining data marts
• implementing the ETL (Extract, Transform, and Load) process that is used in loading the Enterprise layer and in maintaining data marts
• managing and publishing metadata
• managing the environment, including archiving and backing up data
• basic principles of planning the infrastructure (hardware and software)
• considerations for optimal performance in large data warehouses.

Who should attend: Data integration developers who want to learn the principles of architecture and detailed physical design of a data warehouse
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: BWADPRIN

Business Knowledge Series
Learn it. Apply it. Achieve results.

Leverage the knowledge and experience of a global network of leading industry experts through focused in-depth topics on the latest business developments; courses that extend traditional SAS software training; and interactive lectures, software demonstrations, and hands-on workshops.

www.sas.com/bks
Data Quality Using DataFlux\textsuperscript{®} Technology: Fast Track

This intensive training course provides accelerated learning for data quality stewards. This course is for individuals who are comfortable with learning large amounts of information in a short period of time.

Learn how to:
- profile data
- improve data by applying various data cleansing techniques, by integration, and by address verification
- control the data cleansing cycle by using trend analysis and business rules monitoring.

Who should attend: Anyone getting started with DataFlux dfPower Studio to manage and cleanse data

Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: DQDFPS

DataFlux\textsuperscript{®} dfPower\textsuperscript{®} Studio Overview

This course is designed for students who need a solid foundation on data quality using DataFlux in an accelerated time frame.

Learn how to:
- profile data
- understand the QKB components
- use the QKB component editors
- understand various definition types.

Who should attend: Data quality stewards

Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: DQSTQKB

Using DataFlux\textsuperscript{®} Integration Server\textsuperscript{®}

This course is designed for DataFlux customers who want to learn more about the DataFlux Integration Server.

Learn how to:
- configure the DataFlux Integration Server
- process jobs remotely
- establish real-time services.

Who should attend: Data quality stewards
Level III: Intermediate
Delivery: Classroom
Duration: 1 day
Course code: DQINTSVR
Statistical Analyst

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

www.sas.com/paths/stat

For SAS Programmers

- SAS® Programming 1: Essentials
  - Page: 7
- Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression
  - Page: 21
- Predictive Modeling Using Logistic Regression
  - Page: 27
- Statistics 2: ANOVA and Regression
  - Page: 21
- Categorical Data Analysis Using Logistic Regression
  - Page: 19
- Mixed Models Analyses Using SAS®
  - Page: 20
- Multivariate Statistical Methods: Practical Research Applications
  - Page: 20

For SAS Enterprise Guide Users

- SAS® Enterprise Guide® 1: Querying and Reporting
  - Page: 7
- SAS® Enterprise Guide®: ANOVA, Regression, and Logistic Regression
  - Page: 21

For JMP Users

See the JMP® Analyst job role training path (pg. 24)

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

Categorical Data Analysis Using Logistic Regression

This course focuses on analyzing 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:
- recognize 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
- analyze repeated and clustered data using GEE's in the GENMOD procedure.

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

Level III: Intermediate
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 analyze 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 generalized linear mixed model in PROC GLIMMIX

Who should attend: Epidemiologists, social scientists, physical scientists, and business analysts
Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: LONG92

Mixed Models Analyses Using SAS®

This course teaches you how to analyze linear mixed models using PROC MIXED. A brief introduction to analyzing generalized linear mixed models using PROC GLIMMIX is also included.

Learn how to:
• analyze data (including binary data) with random effects
• fit random coefficient models and hierarchical linear models
• analyze 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
Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: AGLM92

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
Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: AMUL92

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• Work in their own SAS® environment.
• Get a certificate of completion.

Learn more and view a demo at www.sas.com/elearn
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

**Level II:** Fundamental
**Delivery:** Classroom
**Duration:** 3 days
**Course code:** EGBS42

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

**Level II:** Fundamental
**Delivery:** Classroom
**Duration:** 3 days
**Course code:** ST192

Statistics 2: ANOVA and Regression

This course teaches you how to analyze 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

**Level III:** Intermediate
**Delivery:** Classroom
**Duration:** 3 days
**Course code:** ST292

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Advanced and Specialty Courses

Categorical Data Analysis Using Logistic Regression
Maximizing Campaign Efficiency with SAS® Marketing Optimization
Multivariate Statistical Methods: Practical Research Applications
Predictive Modeling Using Logistic Regression
Web Analytics and Web Intelligence Using SAS®

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
Level IV: Expert
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 maximize 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 analyzing 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
Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: DOE92

For SAS Programmers

SAS® Programming 1: Essentials
Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression
Statistics 2: ANOVA and Regression

For SAS Enterprise Guide Users

SAS® Enterprise Guide® 1: Querying and Reporting
SAS® Enterprise Guide®: ANOVA, Regression, and Logistic Regression

www.sas.com/paths/mkt
Operations Researcher
I help decision makers solve business, manufacturing, transportation, and supply chain issues. I use linear, integer, mixed-integer, and nonlinear programming as well as quality control techniques.

www.sas.com/paths/or

Advanced and Specialty Courses
Statistical Process Control Using SAS/QC® Software

Building and Solving Optimization Models with SAS/OR®
This course focuses on formulating and solving mathematical optimization using the OPTMODEL procedure, from inputting data to interpreting output and generating reports. The course covers related programming problems with an emphasis on model formulation and construction.

Learn how to:
• formulate and solve linear programming problems using the OPTMODEL procedure
• solve integer and mixed-integer programming problems using the OPTMODEL procedure
• solve nonlinear programming problems using the OPTMODEL procedure.

Who should attend: Anyone who wants to formulate and solve linear, integer, mixed-integer, or nonlinear problems using SAS/OR software
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: OROP92
For JMP Users

JMP® Software: Data Exploration
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JMP® Software: ANOVA and Regression
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JMP® Software: Introduction to the JMP® Scripting Language
pg. 25

JMP® Software: Classic Design of Experiments
pg. 24

JMP® Software: Custom Design of Experiments
pg. 25

For SAS Programmers

See the Statistical Analyst job role training path (pg. 19)

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®

JMP® Analyst
I use JMP software to dynamically visualize statistical data analyses.

www.sas.com/paths/jmp

JMP® Software: ANOVA and Regression
This course teaches how to analyze 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
• analyze 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
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: JANR8

JMP® Software: Classic Design of Experiments
This course teaches you how to design and analyze experiments. Designed experiments can help optimize the process response or identify the vital few factors that drive your product or process. The course emphasizes the principles of experimental design and includes screening designs and response surface designs.

Learn how to:
• explain the fundamental principles of designed experiments

Who should attend: Analysts and researchers with some statistical knowledge
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: JANR8

LEARN MORE OR REGISTER: Contact your local SAS® Education office, see page 45.
• generate and analyze full factorial, fractional factorial, split-plot and screening designs, including designs with blocking factors
• create and analyze 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

Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: JDRS8

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 utilize 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 analyze 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

Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: JMDOE8

JMP® Software: Data Exploration
This course is designed as an important first step for those who want to use JMP to manage, analyze, 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

Level II: Fundamental
Delivery: Classroom
Duration: 1 day
Course code: JDEX8

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 customize 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

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: JSCR8

Join us for training in Singapore
**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.

www.sas.com/paths/dm

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**Advanced and Specialty Courses**

- Administering SAS® Enterprise Miner™
- Advanced Analytics for Customer Intelligence Using SAS®
- Applying Survival Analysis to Business Time-to-Event Problems
- Credit Scorecard Development and Implementation
- Customer Segmentation Using SAS® Enterprise Miner™
- Data Preparation for Data Mining
- Development of Credit Scoring Applications Using SAS® Enterprise Miner™
- Exploratory Analysis for Large and Complex Problems
- 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®9

**Advanced and Specialty Courses Cont.**

- Net Lift Models: Optimizing the Impact of Your Marketing Efforts
- Neural Network Modeling
- Web Analytics and Web Intelligence Using SAS®

**Recommended Certifications**

SAS® Certified Predictive Modeler Using SAS® Enterprise Miner™

Please find more information about SAS Certification on page 5.

**Advanced Predictive Modeling Using SAS® Enterprise Miner™**

This course teaches you how to optimize the performance of predictive models beyond the basics. The course continues the development of predictive models that begins in the Applied Analytics Using SAS® Enterprise Miner™ course.

**Learn how to:**

- use advanced techniques for input selection and model assessment
- construct and evaluate two-stage and multi-stage models using SAS Enterprise Miner
- evaluate variability in model predictive performance.

**Who should attend:** Predictive modelers and data analysts

**Level IV:** Expert

**Delivery:** Classroom

**Duration:** 2 days

**Course code:** PMAD61

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**For SAS Programmers**

- SAS® Programming 1: Essentials
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**For SAS Enterprise Miner Users**

- Data Mining Techniques: Theory and Practice
  - pg. 26
- Applied Analytics Using SAS® Enterprise Miner™
  - pg. 26
- Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression
  - pg. 21

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**Advanced Predictive Modeling Using SAS® Enterprise Miner™**

This course teaches you how to optimize the performance of predictive models beyond the basics. The course continues the development of predictive models that begins in the Applied Analytics Using SAS® Enterprise Miner™ course.

**Learn how to:**

- use advanced techniques for input selection and model assessment
- construct and evaluate two-stage and multi-stage models using SAS Enterprise Miner
- evaluate variability in model predictive performance.

**Who should attend:** Predictive modelers and data analysts

**Level IV:** Expert

**Delivery:** Classroom

**Duration:** 2 days

**Course code:** PMAD61

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**LEARN MORE OR REGISTER:** Contact your local SAS® Education office, see page 45.
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 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

Level III: Intermediate
Delivery: Classroom, e-Course
Duration: 3 days (24 hours for e-Course)
Course code: AAEM61
Certification: This course is suggested preparation for the Predictive Modeling Using SAS® Enterprise Miner™ 5 exam.

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

Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: BDMT61

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

Level IV: Expert
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

Level IV: Expert
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

Level IV: Expert
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 categorization, 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 organize and select documents using data mining; students of data mining who want to learn about text mining

Level II: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: DMTXT
Forecaster

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

www.sas.com/paths/for

Advanced and Specialty Courses

Advanced and Specialty Courses

Advanced Topics in Applied Econometrics

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

Introduction to Applied Econometrics

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

Level II: Fundamental

Delivery: Classroom

Duration: 2 days

Course code: FSTU31

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 organizations

Level IV: Expert

Delivery: Classroom

Duration: 3 days

Course code: FETSP

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

Level III: Intermediate

Delivery: Classroom

Duration: 3 days

Course code: HPF92

Forecasting Using SAS® Forecast Server Software

SAS® Programming 1: Essentials

Using SAS® High-Performance Forecasting Software

Preparation for SAS® Certification Exam

Business Knowledge Series
Six Sigma Professional

I implement Six Sigma methodology to create data-driven measurement strategies to improve processes and reduce variation.

www.sas.com/paths/ss

DMAIC Six Sigma

Executive and Management Training

Executive Overview for Six Sigma

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Champion Training for Six Sigma

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Black Belt – Manufacturing Process Excellence with Lean Six Sigma

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Black Belt – Transactional Process Excellence with Lean Six Sigma

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JMP® for the Six Sigma Professional

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Green Belt – Manufacturing Process Excellence with Lean Six Sigma

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Green Belt – Transactional Process Excellence with Lean Six Sigma

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Advanced and Specialty Courses

Design for Six Sigma: New Product Development

Green Belt – Healthcare Process Excellence with Lean Six Sigma

Yellow/White Belt - Basic DMAIC Problem Solving for Lean Six Sigma

Black Belt – Manufacturing Process Excellence with Lean Six Sigma

This course presents the Six Sigma philosophy. Students learn the DMAIC methodology and how to apply it to their manufacturing projects.

Learn how to:
- use the DMAIC methodology to solve product production problems
- define a problem and objective statement
- determine Critical-to-Quality factors
- generate and execute a data collection plan
- use the root cause analysis tools
- generate improvement strategies
- implement a control system for a newly improved process.

Who should attend: Black Belts or Green Belts working directly on Six Sigma projects

Level IV: Expert

Delivery: Classroom

Duration: 16 days

Course code: SXPROD8

Black Belt – Transactional Process Excellence with Lean Six Sigma

This course presents the Six Sigma philosophy. Students learn the DMAIC methodology and how to apply it to their transactional projects.

Learn how to:
- use the DMAIC methodology to solve operational problems
- define a problem and objective statement
- determine Critical-to-Quality factors
- generate and execute a data collection plan
- use the root cause analysis tools
- generate improvement strategies
- implement a control system for a newly improved process.

Who should attend: Black Belts or Green Belts who are working directly on Six Sigma projects and come from different transactional backgrounds such as sales, human resources, finance, or customer service

Level III: Intermediate

Delivery: Classroom

Duration: 9 days

Course code: SXTRAN8
Champion Training for Six Sigma
This course includes an overview of Six Sigma concepts, required infrastructure, expected benefits, enterprise-level metrics, the DMAIC method for achieving breakthroughs in performance, project selection, and project management.

Learn how to:
- identify opportunities for Six Sigma projects
- write a Six Sigma project problem and objective statement
- select belt candidates
- allocate resources for Six Sigma projects.

Who should attend: Directors and managers working directly as champions of Six Sigma breakthrough projects; suitable for people from manufacturing or transactional backgrounds.

Level II: Fundamental
Delivery: Classroom
Duration: 2 days
Course code: SXCHAM8

Executive Overview for Six Sigma
This course presents an overview of Six Sigma concepts, the required infrastructure, expected benefits, enterprise-level metrics, and the DMAIC method for achieving breakthroughs in performance.

Learn how to:
- determine if your organization is ready for a Six Sigma implementation
- estimate expected benefits
- use the DMAIC or DFSS process to improve business performance.

Who should attend: People from manufacturing or transactional backgrounds, and executives working directly with champions, Black Belts, and Green Belts on Six Sigma breakthrough projects.

Level I: Beginner
Delivery: Classroom
Duration: 0.5 days
Course code: SXEXEC8

Green Belt – Manufacturing Process Excellence with Lean Six Sigma
This course presents the Six Sigma philosophy and teaches you how to use the related tools. Students learn the DMAIC methodology and how to apply it to their manufacturing breakthrough projects.

Learn how to:
- use the DMAIC methodology to solve operational problems
- define a problem and an objective statement
- determine Critical-to-Quality factors
- generate and execute a data collection plan
- use root cause analysis tools to determine the root cause of a problem
- generate improvement strategies
- implement a control system for a newly improved process.

Who should attend: Green Belts working directly on Six Sigma/lean projects.

Level IV: Expert
Delivery: Classroom
Duration: 9 days
Course code: SXGPROD8

JMP for the Six Sigma Professional
This course covers JMP software’s approach to data manipulation and analysis, measurement systems analysis, design of experiments, and statistical process control in direct support of DMAIC breakthrough projects.

Learn how to:
- import and manipulate data
- perform analysis for Six Sigma projects
- design and analyze an experiment
- create control charts.

Who should attend: Six Sigma professionals.

Level III: Intermediate
Delivery: Classroom
Duration: 4 days
Course code: SXJMP8

Green Belt – Transactional Process Excellence with Lean Six Sigma
This course presents the Six Sigma philosophy. Students learn the DMAIC methodology and how to apply it to their transactional Six Sigma and lean projects.

Learn how to:
- use the DMAIC methodology to solve operational problems
- define a problem and an objective statement
- determine Critical-to-Quality factors
- generate and execute a data collection plan
- use root cause analysis tools to determine the root cause of a problem
- generate improvement strategies
- implement a control system for a newly improved process.

Who should attend: Green Belts who are working directly on Six Sigma projects and come from different transactional backgrounds such as sales, human resources, finance, and customer service.

Level III: Intermediate
Delivery: Classroom
Duration: 6 days
Course code: SXGTRAN8
Performance Excellence Manager
I integrate Lean Six Sigma methodology into my organization to improve operational performance.

www.sas.com/paths/pe

Business Statistics and Data Analysis for Performance Excellence

This course focuses on the analysis of data for transactional, healthcare, and banking applications. Foundation statistics, distribution analysis, capability assessment, sensitivity prediction, comparison tests, sample size selection, and model fitting topics are included.

Learn how to:
• use data to solve business and transactional problems
• select appropriate analysis techniques based on type of data
• conduct comparative tests using data
• apply JMP to data analysis problems.

Who should attend: Six Sigma professionals, managers, and business and marketing analysts who routinely analyze and interpret data about their industry, market, competition, and customers, as well as their own business performance

Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: SXBSDA8

Design of Experiments

This course is designed for individuals working directly on product and process development to characterize, optimize, and control product and process performance.

Learn how to:
• explain the fundamental principles of designed experiments
• create and analyze full factorial and screening designs
• create and analyze response surface designs
• augment existing experiments to address new questions about higher-order effects
• understand mixture designs, EVOP, and Taguchi arrays.

Who should attend: Engineers, scientists, and Six Sigma professionals

Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: SXDOE8

Advanced and Specialty Courses

Engineering Statistics and Data Analysis for Biotechnology, Pharmaceutical, and Medical Devices
Failure Modes and Effects Analysis
Lean Methods for Performance Excellence
Process Mapping Using Visio
Quality Risk Management and FMEA
Reliability Analysis
Robust Optimization and Tolerance Design
Voice of the Customer and QFD

Business Statistics and Data Analysis for Performance Excellence

Engineering Statistics and Data Analysis for Performance Excellence
SAS® Administrators

SAS® Foundation Administrator
I install, configure, administer, and maintain SAS Foundation.

www.sas.com/paths/fa

SAS® Enterprise Guide® Administrator
I install, configure, administer, and maintain SAS Enterprise Guide.

www.sas.com/paths/ega

Security for SAS® Foundation: Data at Rest
This course is for SAS administrators and SAS users working with secure data. It covers various topics related to security issues for SAS Foundation, such as providing passwords for SAS data sets, encrypting data, and operating system security. After completing this course, you should understand the types of security issues associated with SAS Foundation and be able to use SAS options and other resources to control access to SAS data on disk and to encrypt and protect data and credentials when stored in static form.

Learn how to:
• identify security risks and strategies to prevent those risks
• control access to data on disk
• use different methods to encrypt documents produced by SAS.

Who should attend: SAS administrators who are responsible for implementing security for SAS data and applications at their site, and end users who are interested in securing their own data and applications

Level III: Intermediate
Delivery: Classroom
Duration: 1 day
Course code: ADFSCR

SAS® Enterprise Guide® Administration
This course is for SAS administrators who need to administer SAS Enterprise Guide.

Learn how to:
• review the steps to install and configure SAS Enterprise Guide
• manage server access
• modify workspace server attributes and other SAS Enterprise Guide specific actions
• determine appropriate use of the SAS Enterprise Guide Explorer
• use SAS Enterprise Guide roles.

Who should attend: Administrators for SAS Enterprise Guide and the platform for SAS Business Analytics

Level II: Fundamental
Delivery: Classroom
Duration: 2 days
Course code: SPAEG
SAS® Platform Administrator
I install, configure, administer, and maintain the platform for SAS Business Analytics.

www.sas.com/paths/pa

Advanced and Specialty Courses
SAS® Data Integration Studio: Administration
SAS® Enterprise Guide®: Administration
SAS® Enterprise Miner™: Administration
SAS® OLAP Environment: Administration
SAS® Scalable Performance Data Server®: Administration
What’s New in SAS® 9.2 Platform Administration

Recommended Certifications
SAS® Certified Platform Administrator for SAS 9
Please find more information about SAS Certification on page 5.

SAS® Platform Administration: Fast Track
This intensive training course provides accelerated learning for those students who will administer the platform for SAS Business Analytics. This course is for individuals who are comfortable with learning large amounts of information in a short period of time.

Learn how to:
This fast track course covers the same topics as SAS® Platform Administration 1: Essentials and SAS® Platform Administration 2: Security.

Who should attend:
Experienced SAS administrators responsible for the platform for SAS Business Analytics

Level IV: Expert
Delivery: Classroom
Duration: 5 days
Course code: SPAFT
Certification: This course is suggested preparation for the SAS® Platform Administration for SAS®9 exam.

OR

5-day concentrated, accelerated course

SAS® Platform Administration: Fast Track
pg. 33

CP Preparation for SAS® Certification Exam
SAS® Platform Administration: Getting Started

This course provides an overview of the platform for SAS Business Analytics from a platform administrator’s perspective.

Learn how to:
- identify the tiers of the platform for SAS Business Analytics
- understand metadata and how it can be modified by the various client tier applications
- understand the specific job functions of a SAS platform administrator.

Who should attend: Anyone responsible for needing to understand or administer the platform for SAS Business Analytics

Level I: Beginner
Delivery: Classroom
Duration: 1 day
Course code: SPAGS

SAS® Platform Administration 1: Essentials

This course provides students with the essential knowledge to perform the job functions of a SAS platform administrator. It is the entry point to learning SAS platform administration and is a prerequisite to many other administration courses.

Learn how to:
- back up the SAS environment and move metadata
- administer users, access to data and SAS content
- understand how client applications interact with metadata
- review the basics for monitoring, logging, and troubleshooting SAS servers.

Who should attend: SAS administrators responsible for the platform for SAS Business Analytics

Level II: Fundamental
Delivery: Classroom
Duration: 2 days
Course code: SPA1
Certification: This course is suggested preparation for the SAS® Platform Administration for SAS®9 exam.

SAS® Platform Administration 2: Security

This course teaches students how to understand security concepts and secure the platform for SAS Business Analytics and the content that it contains.

Learn how to:
- identify and administer the different types of users
- recognize and establish various security techniques
- secure data and other shared content
- troubleshoot metadata security.

Who should attend: SAS platform administrators

Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: SPA2
Certification: This course is suggested preparation for the SAS® Platform Administration for SAS®9 exam.

Access Online Resources Around the World

SAS Community: share technical knowledge with others in the worldwide SAS Community. www.sascommunity.org

SAS Support: find hints and tips, join discussions and search the knowledge base. support.sas.com

SAS Resource Center: access analyst reports, whitepapers, factsheets and blogs. www.sas.com/resources

SAS Professionals: learn about the latest SAS technologies, network with others and develop your career. www.sasprofessionals.net
Administering SAS® Enterprise Miner™
This course is for administrators who need to install, configure, administer, and maintain SAS Enterprise Miner.

Learn how to:
• review the steps to install and configure SAS Enterprise Miner
• manage server access
• manage data access
• manage SAS Enterprise Miner specific metadata.

Who should attend: IT administrators responsible for the platform for SAS Business Analytics and SAS Enterprise Miner
Level II: Fundamental
Delivery: Classroom
Duration: 1 day
Course code: SPAEM

Creating and Administering Scorecard Projects
This course focuses on how to surface information clearly, accurately, and quickly; expose relationships between activities and their impacts on shareholder value; understand which activities drive others and what impact these activities have on organization performance; and identify potential problems by understanding their root causes.

Learn how to:
• create a project, template, and scorecard hierarchy and add data to the scorecard
• create and apply thresholds, ranges, and column selections
• display element associations and dashboards
• create diagrams, create and use aggregate views, and create and view comments
• access a scorecard through Microsoft Office
• apply security.

Who should attend: Modelers, business analysts, and administrators
Level II: Fundamental
Delivery: Classroom
Duration: 3 days
Course code: STM51

SAS® Human Capital Management Administration
This course teaches you how to administer and set up the data structure for SAS Human Capital Management software.

Learn how to:
• understand the SAS Human Capital Management data model
• build multidimensional cubes
• construct information maps (business user views of the data)
• create SAS BI Dashboards
• maintain SAS Human Capital Management security.

Who should attend: Data administrators, system administrators, and implementers responsible for SAS Human Capital Management
Level II: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: STM51
Designing and Executing Marketing Campaigns Using SAS® Customer Intelligence Studio

This course provides an overview of SAS Marketing Automation 5.1 and addresses how to construct outbound marketing decisions using SAS Customer Intelligence Studio.

Learn how to:
• identify the types of problems that are solved by SAS Marketing Automation
• navigate all areas of SAS Customer Intelligence Studio
• create and test outbound marketing campaigns and inbound decisions.

Who should attend: Users of SAS Marketing Automation who want to learn how to use SAS Customer Intelligence Studio for marketing decisions

Level II: Fundamental
Delivery: Classroom
Duration: 1.5 days
Course code: CISTU53

Managing the SAS® Marketing Automation Data Environment

This course provides an understanding of how to build, extend, and maintain the information map required in a SAS Marketing Automation environment.

Learn how to:
• create an information map for use in SAS Marketing Automation
• use the information map to generate metadata tables for SAS Marketing Automation
• create a business context using the Marketing Automation plug-in in SAS Management Console.

Who should attend: Data modelers, IT administrators, and marketing analysts

Level III: Intermediate
Delivery: Classroom
Duration: 1 day
Course code: MADATA53

Advanced and Specialty Courses

Advanced Analytics for Customer Intelligence Using SAS®
Managing Broadcasts Using SAS® Digital Marketing
Maximizing Campaign Efficiency with SAS® Marketing Optimization
SAS® for Customer Experience Analytics: Customizing Business Content
SAS® for Customer Experience Analytics: Data Integration
SAS® for Customer Experience Analytics: Normalization
SAS® Social Media Analytics Portal
Using SAS® for Customer Experience Analytics: Reporting
Using SAS® Interaction Management
Web Analytics and Web Intelligence Using SAS®

Join us for training in Rome, Italy
What's New in SAS® Risk Dimensions®
pg. 37  BKS

Credit Scorecard Development and Implementation
pg. 37  BKS

Applied Analytics Using SAS® Enterprise Miner™
pg. 27  CP

Advanced and Specialty Courses

Preparing for Solvency II
Preparing for Solvency II Equivalence
SAS® Risk Dimensions®: Analysis
SAS® Risk Dimensions®: Configuration

What's New in SAS® Risk Dimensions®
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Credit Risk Modeling Using SAS®
pg. 37  BKS

Credit Scorecard Development and Implementation
pg. 37  BKS

Development of Credit Scoring Applications Using SAS® Enterprise Miner™
pg. 37  BKS

Development of Credit Scoring Applications Using SAS® Enterprise Miner™

This course teaches students how to build a credit scorecard, from start to finish, using SAS Enterprise Miner and the methodology recommended by leading credit and financial experts.

Learn how to:
• use the SAS Enterprise Miner Interactive Grouping node to select the predictive variables using Information Value and calculate Weight of Evidence values
• use the SAS Enterprise Miner Scorecard node to build a preliminary scorecard using the appropriate scaling methodology
• perform reject inference techniques in order to augment the scorecard by using rejected applicants
• determine how well the scorecard performs using scorecard diagnostic tools such as ROC and Lift charts.

Who should attend: Risk analysts, credit modelers, credit scorecard developers, credit managers, credit analysts, and business analysts in banks and other financial institutions
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: CSEM

Credit Risk Modeling Using SAS®

In this course, students learn how to develop credit risk models in the context of the recent Basel II guidelines. The course provides a sound mix of both theoretical and technical insight, as well as practical implementation details. These are illustrated by several real-life case studies and exercises.

Learn how to:
• develop probability of default (PD), loss given default (LGD), and exposure at default (EAD) models
• validate, backtest, and benchmark credit risk models
• stress test credit risk models
• develop credit risk models for low default portfolios.

Who should attend: Anyone who is involved in building credit risk models or is responsible for monitoring the behavior and performance of credit risk models
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: BB3C

Credit Scorecard Development and Implementation

This business-focused course provides the necessary knowledge to plan, develop, implement, and maintain risk scorecards in-house. The course offers a high-level introduction to credit risk management and covers scorecard implementation strategies.

Learn how to:
• create business and project plans for scorecard development
• develop and validate intelligent credit risk scorecards in a step-by-step fashion
• generate scorecard and portfolio performance reports.

Who should attend: Credit risk/scoring managers and data miners; those involved in model vetting/validation and auditing; risk strategy developers; and credit risk executives
Level IV: Expert
Delivery: Classroom
Duration: 2 days
Course code: CSDI

What's New in SAS® Risk Dimensions®

This course shows the new features in SAS Risk Dimensions 5.2 and assists the student in expanding capability and flexibility in using the solution.

Learn how to:
• use new features in simulations and VaR measurement
• use new functionality in trading and reinvestment
• take advantage of enhanced portfolio benchmarking
• use enhanced access to SAS features within SAS Risk Dimensions.

Who should attend: Customers who have been using SAS Risk Dimensions and recently purchased 5.2 or may be considering purchasing, and SAS consultants responsible for implementation and support of the solution
Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: BRDWN52

Preparation for SAS® Certification Exam
CP
Business Knowledge Series
Who should attend: SAS consultants engaged in the implementation of SAS Merchandise Planning 6.1

Level III: Intermediate
Delivery: Classroom
Duration: 1.5 days
Course code: SMITECH

Using SAS® Markdown Optimization 4.3
This course provides you with the knowledge and hands-on skills that you need to use SAS Markdown Optimization efficiently and within your retail organization.

Learn how to:
• create initial markdown plans
• review markdown plans for exceptions
• adjust markdown plans
• approve price changes
• use SAS Markdown Optimization reports.

Who should attend: Business users of SAS Markdown Optimization, including pricing analysts, merchandise planners, buyers, assistants, and managers, as well as SAS consultants involved in implementing this solution

Level II: Fundamental
Delivery: Classroom
Duration: 1.5 days
Course code: SMIMD43

Using SAS® Promotion Optimization 4.3
This course provides you with the information, comprehension, and hands-on skills that you will need to use SAS Promotion Optimization efficiently and within your retail organization.

Learn how to:
• monitor promotional approvals against targets and assignments
• plan future promotional needs through the use of a Category Plan
• create promotions (including what-if scenarios) based on business needs and forecast results
• track promotional results via the UI and reports.

Who should attend: Business users of SAS Promotion Optimization, including calendar planners, merchandise managers, and category planners, as well as SAS implementation consultants

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SMIP043

Overview of SAS® Merchandise Planning 6.1
This course covers the fundamentals of SAS Merchandise Planning 6.1, including introductions to the architecture and metadata used.

Learn how to:
• use the basic features and functions of SAS Merchandise Planning
• demonstrate the capabilities of the solution in support of customer implementations.

Who should attend: SAS application, technical, and metadata consultants as well as customer associates engaged in the implementation of SAS Merchandise Planning 6.1

Level I: Beginner
Delivery: Classroom
Duration: 3 days
Course code: SMIOVR61

Technical Overview of SAS® Merchandise Planning 6.1
This course focuses on the technical aspects of defining a SAS Merchandise Planning 6.1 solution based on customer business requirements. It prepares technical consultants to participate in the Solution Definition Workshop (SDW) in which the project team determines how best to implement business processes.

Learn how to:
• make use of the underlying architecture of SAS Merchandise Planning 6.1
• implement using the SAS methodology
• manage technical roles and responsibilities during an implementation project.

Who should attend: Business users of SAS Merchandise Planning, including merchandise managers, and other category planners, as well as SAS consultants involved in implementing this solution

Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: SMIMD43

SAS® Merchandise Planning 6.1: Administration Training
This course focuses on setting up SAS Merchandise Planning, clustering, using the SAS Template Manager module, getting started with plan management, and using advanced planning features.

Learn how to:
• set up user and group security; base highlight, sort, and filter sets; dimension sets; templates; and Plan Management features and functions
• use security logs as well as PA views and planning worksheets
• use advanced planning features in SAS Merchandise Planning 6.1.

Who should attend: SAS Merchandise Planning administrators, super users, and other individuals participating in an implementation of the SAS Integrated Merchandise Planning Solution

Level IV: Expert
Delivery: Classroom
Duration: 8 days
Course code: SMIMAD61

Advanced and Specialty Courses

SAS® Markdown Optimization 4.3: Analytics and Modeling
SAS® Retail Space Management 6.2: Administration Training
Using Intelligent Clustering in SAS® Merchandise Planning
Using SAS® Merchandise Allocation 2.8
Using SAS® Pack Optimization 2.3
Using SAS® Retail Space Management Client 6.2
Using SAS® Retail Space Management Collaborative Planogramming 6.2
Using SAS® Size Profiling 2.3

Using SAS® Promotion Optimization 4.3
This course provides you with the knowledge, comprehension, and hands-on skills that you need to implement SAS Promotion Optimization efficiently and within your retail organization.

Learn how to:
• monitor promotional approvals against targets and assignments
• plan future promotional needs through the use of a Category Plan
• create promotions (including what-if scenarios) based on business needs and forecast results
• track promotional results via the UI and reports.

Who should attend: Business users of SAS Promotion Optimization, including calendar planners, merchandise managers, and category planners, as well as SAS implementation consultants

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SMIP043

Using SAS® Revenue Optimization
This course provides you with the information, comprehension, and hands-on skills that you will need to use SAS Revenue Optimization efficiently and within your retail organization.

Learn how to:
• monitor revenue optimization
• plan revenue optimization
• track revenue optimization

Who should attend: Business users of SAS Revenue Optimization, including calendar planners, merchandise managers, and category planners, as well as SAS implementation consultants

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SMIP043

Using SAS® Retail Space Management 6.2: Administration Training
This course focuses on the administration training for SAS Retail Space Management 6.2.

Learn how to:
• implement using the SAS methodology
• manage technical roles and responsibilities during an implementation project.

Who should attend: SAS retail space management administrators, super users, and other individuals participating in an implementation of the SAS Integrated Retail Space Management Solution

Level IV: Expert
Delivery: Classroom
Duration: 8 days
Course code: SMIMAD62

Using SAS® Technical Overview of SAS® Merchandise Planning 6.1
This course provides you with the information, comprehension, and hands-on skills that you need to use SAS Technical Overview of SAS Merchandise Planning 6.1.

Learn how to:
• use the basic features and functions of SAS Merchandise Planning
• demonstrate the capabilities of the solution in support of customer implementations.

Who should attend: SAS application, technical, and metadata consultants as well as customer associates engaged in the implementation of SAS Merchandise Planning 6.1

Level I: Beginner
Delivery: Classroom
Duration: 3 days
Course code: SMIOVR61

Overview of SAS® Merchandise Planning 6.1
This course covers the fundamentals of SAS Merchandise Planning 6.1, including introductions to the architecture and metadata used.

Learn how to:
• use the basic features and functions of SAS Merchandise Planning
• demonstrate the capabilities of the solution in support of customer implementations.

Who should attend: SAS application, technical, and metadata consultants as well as customer associates engaged in the implementation of SAS Merchandise Planning 6.1

Level I: Beginner
Delivery: Classroom
Duration: 3 days
Course code: SMIOVR61

Using SAS® Promotions Optimization 4.3
This course provides you with the knowledge, comprehension, and hands-on skills that you need to use SAS Promotions Optimization efficiently and within your retail organization.

Learn how to:
• monitor promotions
• plan promotions
• track promotions

Who should attend: Business users of SAS Promotions Optimization, including calendar planners, merchandise managers, and category planners, as well as SAS implementation consultants

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SMIP043

Using SAS® Price Optimization 4.3
This course provides you with the information, comprehension, and hands-on skills that you need to use SAS Price Optimization efficiently and within your retail organization.

Learn how to:
• monitor price optimization
• plan price optimization
• track price optimization

Who should attend: Business users of SAS Price Optimization, including calendar planners, merchandise managers, and category planners, as well as SAS implementation consultants

Level III: Intermediate
Delivery: Classroom
Duration: 2 days
Course code: SMIP043

Using SAS® Merchandise Allocation 2.8
This course focuses on the technical aspects of allocating merchandise.

Learn how to:
• set up user and group security; base highlight, sort, and filter sets; dimension sets; templates; and Plan Management features and functions
• use security logs as well as PA views and planning worksheets
• use advanced planning features in SAS Merchandise Planning 6.1.

Who should attend: SAS Merchandise Allocation 2.8 administrators, super users, and other individuals participating in an implementation of the SAS Integrated Merchandise Allocation Solution

Level IV: Expert
Delivery: Classroom
Duration: 8 days
Course code: SMIMAD62

SAS® Solutions
Using SAS® Regular Price Optimization 4.3

This course provides students with an overview of key terms and concepts, as well as how those terms and concepts relate to their current process of determining a regular price for new or existing products. The course outlines how to create regular price optimization plans in order to achieve customer goals in gross margin as well as inventory control.

Learn how to:
• manage pricing rules
• create and modify regular price optimization plans
• review and approve regular prices
• work with price inquiries and alerts as well as regular price reports.

Who should attend: Users such as pricing analysts, buyers, merchandise planners, and merchandise managers who are responsible for the planning and managing of regular prices for the products within their defined area of responsibility
Level III: Intermediate
Delivery: Classroom
Duration: 1.5 days
Course code: SMIRPO43

Financial Management www.sas.com/paths/fm

SAS® Financial Management: Financial and Operational Planning
This course demonstrates how to import and customize the SAS Financial Management transformations and jobs that are used to move data from the organization data store to the Solutions Data Mart.

Learn how to use SAS supplied jobs in SAS Data Integration Studio to:
• load dimension members and hierarchies into the Detail Data Store
• load financial transactions into the Detail Data Store
• move data from the Detail Data Store into the Solutions Data Mart
• add new dimension types, members, and member hierarchies
• export financial data from the Solutions Data Mart.

Who should attend: Data administrators implementing SAS Financial Solutions
Level IV: Expert
Delivery: Classroom
Duration: 3 days
Course code: FMDA51

SAS® Financial Management: Financial and Operational Planning
This course provides an overview of SAS Financial Management and its workspaces. You learn to develop operational plans, generate financial forecasts, and create financial budgets using SAS Financial Management Studio.

Learn how to:
• create Financial and Operational Form Sets
• manage the planning cycle, including the creation, tracking, and deployment of budgets and forecasts.

Who should attend: Anyone responsible for the business processes of creating financial budgets, forecasts, and operational plans
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course code: FMFOP51

SAS® Financial Management: Financial Reporting
This course provides an overview of SAS Financial Management and its workspaces. You will learn to create financial reports that adhere to corporate and government standards. Also covered is how to analyze financial results using real-time information and on-demand consolidation.

Learn how to:
• automate core financial computations, including inter-company eliminations, rule-based journal entries, and foreign currency translations
• work with exchange rates
• build and use models
• create, share, and enhance reports
• build formulas.

Who should attend: Anyone responsible for the business processes of performing consolidations, generating reports, and analyzing results
Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course Code: FMFR51
**IT Management**

www.sas.com/paths/it

**SAS® IT Resource Management: Administration**

This course provides an introduction to SAS IT Resource Management 3.2. It addresses how to create the IT data mart, which delivers analysis- and report-ready data and standard reports to members of an organization.

*Learn how to:*
- build and maintain an IT data mart
- manage and run the production ETL
- summarize the data
- create reports.

*Who should attend:* Anyone responsible for IT resource performance management and capacity planning, including IT capacity planners, managers, administrators, architects, and service managers, as well as managers and practitioners from technical services, infrastructure support, and performance management.

*Level III: Intermediate*

*Delivery:* Classroom

*Duration:* 3 days

*Course code:* IT32A

**SAS® IT Resource Management: Reporting**

This course introduces and illustrates the value of an IT performance data warehouse, the IT data mart created by the SAS IT Resource Management solution. You will learn the structure and use of the IT data mart and the processes involved in delivering reports to any members of the organization. The course also addresses the SAS Business Intelligence components of SAS IT Resource Management that are used to create report definitions and to produce and deliver reports via the SAS midtier server to the Web.

*Learn how to:*
- analyze data and create reports using SAS Enterprise Guide
- explore the creation of report jobs that can be run in batch
- leverage the gallery manager Web application from SAS IT Resource Management to organize and distribute IT domain intelligence reports to user communities.

*Who should attend:* Anyone responsible for IT resource performance management and capacity planning, including IT capacity planners, managers, administrators, architects, and service managers, as well as managers and practitioners from technical services, infrastructure support, and performance management.

*Level III: Intermediate*

*Delivery:* Classroom

*Duration:* 2 days

*Course code:* IT32R

**Profitability Management**

www.sas.com/paths/pfm

**Using SAS® Tools for Profitability Performance Management**

This course covers key concepts and focuses on building a profitability model and generating dynamic reports. In addition to model design techniques and validation, you will learn advanced reporting, which includes identifying alternative SAS tools for analyzing SAS Profitability Management data (for example, SAS Enterprise Guide, SAS Data Integration Studio, and SAS Profitability Management studio are also used in this class). The course concludes with project implementation.

*Learn how to:*
- build and update a SAS Profitability Management model
- recognize the relationship between rules and behaviors
- update an existing model with new data
- analyze model data using OLAP reporting tools.

*Who should attend:* Users of SAS Profitability Management and technical analysts, specifically those who want to be able to quickly calculate point profit for customer transactions using SAS Profitability Management.

*Level III: Intermediate*

*Delivery:* Classroom

*Duration:* 3 days

*Course code:* PFM21

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**Advanced and Specialty Courses**

IT Capacity Management with SAS®

**SAS® IT Resource Management: Administration**

*Level III: Intermediate*

*Delivery:* Classroom

*Duration:* 3 days

*Course code:* IT32A

**SAS® IT Resource Management: Reporting**

*Level III: Intermediate*

*Delivery:* Classroom

*Duration:* 2 days

*Course code:* IT32R

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*Wherever around the globe your staff are, you can be assured that world-class education and training from SAS® Education is available.*

*Seoul, Korea*

*Budapest, Hungary*
Clinical Data Integration

SAS® Programming 1: Essentials

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SAS® Clinical Data Integration: Essentials

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This course shows how to import CDISC standards (or other standards) for domain structure and contents into the metadata, build clinical domain target table metadata from those standards, create jobs to load clinical domains, to validate the structure and content of the clinical domains based on the standards, and to generate CDISC standard define.xml files describing the domain tables for clinical submissions. Also covered are methods to monitor the status of clinical data integration projects and to promote new domain structures created within clinical projects to customized standards available across the organization.

Learn how to
• work with many of the various transformations
• import clinical standards into metadata
• customize clinical domain tables and columns
• monitor clinical projects
• promote new standards.

Who should attend: Clinical data integration administrators and clinical data integration developers

Level III: Intermediate
Delivery: Classroom
Duration: 3 days
Course Code: CLINDI

Fraud Prevention and Detection

SAS® Fraud Framework: Using the Investigator User Interface

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This course provides you with the knowledge and skills needed to use the Investigator User Interface, a component of SAS Fraud Framework. The course covers identifying individuals associated with fraud, researching the data related to the individuals, and exploring the social network of individuals.

Learn how to
• navigate the Investigator User Interface
• use the Alert Queue
• use the Alert Details Display
• use the Social Networking Analysis Display.

Who should attend: Users who will be interacting with the Investigator User Interface of SAS Fraud Framework

Level II: Fundamental
Delivery: Classroom
Duration: 1 day
Course Code: FRFR

Lisbon, Portugal

Madrid, Spain

Kuala Lumpur, Malaysia
Activity-Based Management

www.sas.com(paths/abm)

ABM Modeler / Business Analyst

ABC Modeling Using SAS® Activity-Based Management 7.x

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SAS® Activity-Based Management 7.x Advanced Reporting and Analysis

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Data Integration for SAS® Activity-Based Management 7.x

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Advanced and Specialty Courses

Advanced Modeling Techniques Using SAS® Activity-Based Management 7.x

This course teaches how to:
• map source tables to data fields and properties in the staging tables
• export model data for analysis and reporting.

Who should attend: Database users who prepare source data for import to or export from SAS Activity-Based Management 7.x models

Level III: Intermediate

Delivery: Classroom

Duration: 2 days

Course code: ABTL71

SAS® Activity-Based Management 7.x

Advanced Reporting and Analysis

This course teaches how to create focused reports through the use of OLAP analysis cubes, report templates, and the classic analytic view of an ABC model.

Learn how to:
• build reports for both model validation and analysis
• design effective reports reflecting the report consumer’s preferred style
• utilize online analytical processing (OLAP) for custom reports
• use SAS Enterprise Guide to pull SAS Activity-Based Management model data to construct custom reports
• prepare your reports for delivery.

Who should attend: Model builders who are responsible for creating and maintaining standard and custom SAS Activity-Based Management reports

Level III: Intermediate

Delivery: Classroom

Duration: 2 days

Course code: ABRC71

Data Integration for SAS® Activity-Based Management 7.x

This course familiarizes you with methods of data extraction, transformation, and loading (ETL) in preparation for SAS Activity-Based Management 7.x.

Learn how to:
• set up the SAS Activity-Based Management system for ETL
• use the data schema for creating staging tables
• import model data from staging tables

Who should attend: Managers, analysts, and model builders

Level II: Fundamental

Delivery: Classroom

Duration: 4 days

Course code: ABMO71

Human Capital Management

www.sas.com/paths/hcm

NEW

Advanced and Specialty Courses

SAS® Human Capital Management for Strategic Decision Making

This course teaches students how to view, access, and analyze information as well as build reports using SAS Human Capital Management software.

Learn how to:
• navigate SAS Human Capital Management using the SAS Information Delivery Portal
• view summary information using key performance indicators and dashboards
• use the employee browser to view detailed employee information
• view and analyze organizational and geographic information
• create reports on the Web and using Microsoft Office applications
• understand and use the predictive analysis capacities within SAS Human Capital Management.

Who should attend: Users of SAS Human Capital Management 5

Level I: Beginner

Delivery: Classroom

Duration: 3 days

Course code: HCM5USR

LEARN MORE OR REGISTER: Contact your local SAS® Education office, see page 45.
Creating and Administering Scorecard Projects

This course focuses on how to surface information clearly, accurately, and quickly, expose relationships between activities and their impacts on shareholder value, understand which activities drive others and what impact these activities have on organization performance, and identify potential problems by understanding their root causes.

Learn how to:
• create a project, template, and scorecard hierarchy and add data to the scorecard
• create and apply thresholds, ranges, and column selections
• display element associations and dashboards
• create diagrams, create and use aggregate views, and create and view comments
• access a scorecard through Microsoft Office
• apply security.

Who should attend: Modelers, business analysts, and administrators
Level II: Fundamental
Delivery: Classroom
Duration: 3 days
Course code: STM51

Sustainability Management

This course provides an introduction to sustainability, the World Resources Institute, greenhouse gases, mitigation strategies and offsets, and associated terminology.

Learn how to:
• determine the structure of a greenhouse gases model
• build a model
• analyze a model for reporting and tracking.

Who should attend: Analysts who are involved in sustainability projects or who are planning to become involved with sustainability
Level II: Fundamentals
Delivery: Classroom
Duration: 2 days
Course code: ABGHGM

Greenhouse Gas Modeling with SAS® for Sustainability Management

This course provides an introduction to sustainability, the World Resources Institute, greenhouse gases, mitigation strategies and offsets, and associated terminology.

Learn how to:
• navigate the projects, data selections, reports, and emerging issues workspaces
• specify data selections and analysis options
• perform analyses
• view report output
• identify and investigate emerging issues.

Who should attend: Anyone who will be using the SAS Warranty Analysis interface
Level I: Beginner
Delivery: Classroom
Duration: 3 days
Course code: SWAT

SAS® Warranty Analysis Training
Analytics Conference Series

October 24 - 25
JW Marriott & Ritz Carlton, Orlando, FL
(Formerly the Data Mining Conference)

Additional dates and international locations to be announced.

Join the top minds in analytics and colleagues from all over the world for an international series of conferences that will cover all the key areas associated with analytics: data mining, text mining, forecasting, optimization, statistical analysis, predictive analytics and more.

Analytics 2011, formerly the M2010 Data Mining Conference, is the premier event for analytical professionals – and it's now become a series. Drawing on 14 years of history, Analytics 2011 will offer conferences in the US and other premier locations around the world.

Learn from visionary keynote speakers, insightful session speakers with real-world case studies and hands-on software training.

Learn more at www.sas.com/analyticsseries

6th Annual Business Forecasting Conference

June 6 - 7, 2011
SAS World Headquarters, Cary, NC

Forecasting is a balance between art and science, taking trends from the past coupled with current data to determine future business decisions. F2011 will bring together leaders in the field who will interweave real-world experiences, the latest forecasting research and best practices in the field to teach you how to create smart, accurate forecasts.

Join hundreds of forecasting professionals in Cary, NC, for two insightful days of sessions.

Pre- and post-conference training sessions are also available.


F2 2011
DENVER
DISCOVERY SUMMIT 2011
Exploring data, inspiring innovation
September 12 – 16, 2011

Save the date for Discovery Summit 2011, Sept. 12-16 in Denver. At this interactive forum, hosted by JMP® statistical discovery software, you will explore broad analytic concepts with world-renowned authorities in statistics, technology and innovation; participate in conversations with JMP developers and JMP users from all industries; and learn proven statistical techniques in visual and compelling ways.

See what happened at the last Discovery Summit: www.jmp.com/summit

April 4 - 7, 2011
Caesars Palace, Las Vegas

SAS Global Forum provides SAS users the opportunity to sharpen their SAS skills while sharing ideas with fellow users. You will find information on every topic of interest through hundreds of papers, presentations, hands-on demonstrations, stimulating keynote presentations and powerful workshops. For additional conference information, visit www.sasglobablforum.org/2011.

Maximize your time at SAS® Global Forum with SAS® Training and SAS® Certification!

SAS Education will offer numerous training courses and SAS Certification exams prior to SAS Global Forum. Head out to Vegas a few days early and take advantage of this great opportunity! For more information and to register, visit www.sas.com/training/sasglobalforum.
## Training Locations

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