

Paper 191-2013

## **SAS® Certification: Understand the Benefits of SAS Certification, Which SAS Certifications Are Available, and What SAS Certification Can Do for You**

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### **ABSTRACT**

SAS® has long had certification available for its programming language and for its flagship data mining product, SAS® Enterprise Miner™. More recently with the release of the SAS®9 platform suite have come certifications in SAS® Data Integration Studio, SAS® Business Intelligence, and SAS® Platform Administration.

But what are the benefits of (and some of the differing opinions about) SAS Certification? What is available, and what's in it for organizations, their staff and for SAS consultants to become SAS Certified?

### **INTRODUCTION**

Place yourself in the position of an employer or client interviewing two candidates for a position. Both have similar resumes, similar training, similar experience, similar references. But one is SAS Certified, the other is not. All things being equal, which one is likely to be employed? **The one with the independent validation of their SAS knowledge.**

Ultimately, what an employer or client is seeking is the assurance that the candidate has the knowledge to fulfill – or exceed – the responsibilities assigned to them. This knowledge can be gained through a variety of means:

- Experience
- Formal training
- Self-study
- Knowledge sharing
- Referrals

What SAS Certification seeks to achieve is to provide an objective measure of that knowledge.

SAS has offered a certification program since 1999 as a way to add value to SAS' brand, and offer benefits to employers, clients, and SAS users.

**The benefits of SAS Certification for the employer** (taken from the SAS Certification website)

- *Help managers differentiate the most qualified technical professionals and attract the brightest.*
- *By measuring an employee's knowledge of SAS software, you'll retain the best.*
- *SAS Certification increases individual and workgroup productivity levels, which will maximize the value of your workforce.*

Also, for an employer to invest in training their staff, SAS Certification is a way to measure the effectiveness of that training. Anyone can sit through a training course, but to follow up with Certification is a way to ensure they are gaining value for their company by ensuring their staff have taken on and can apply what they have learned.

**The benefits of SAS Certification for the individual** (also taken from the SAS Certification website)

- *Increases your career opportunities and marketability*
- *Enhances your credibility as a technical professional*
- *Assesses your knowledge of SAS software*
- *Allows you to earn industry validation for your knowledge*

As mentioned earlier, SAS Certification is an independent validation of your SAS knowledge. It shows you have at least a “baseline knowledge” of the subject matter, and is a way to help you stand out in the SAS community.

As a SAS Certified Professional, your credentials can be made publicly available for others – such as potential employers or clients – to verify. Below is a screenshot taken from <http://support.sas.com/certify/directory.html>.

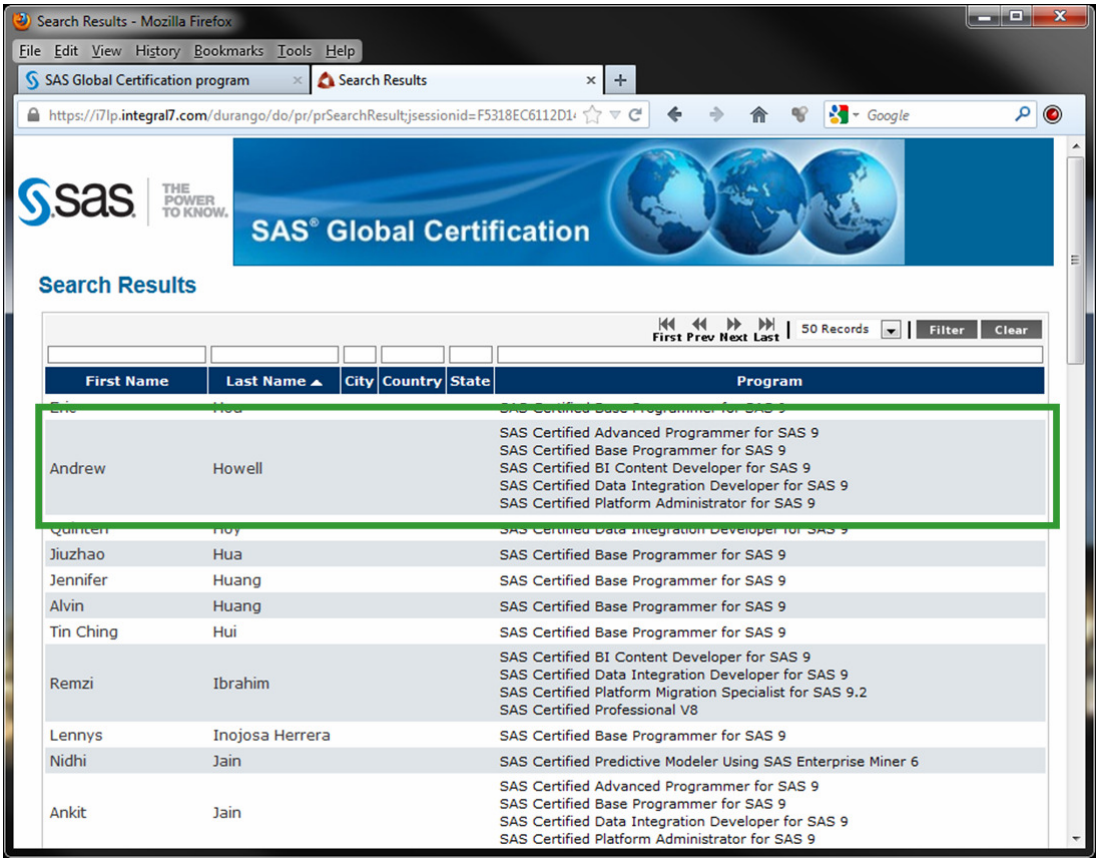


Figure 1. Public Listing of SAS Certifications

CERTIFICATION STATISTICS

From the SAS Global Certification Team, as of 12 March 2013, there are currently 52,393 SAS Certificates awarded to 38,486 SAS Certified Professionals. This is a 20% increase from the same time last year. Below is a breakdown of the certificates.

Program	Issued
SAS Certified Advanced Programmer	1,238
SAS Certified Advanced Programmer for SAS 9	8,310
SAS Certified Architecture and Design Specialist for SAS Grid Manager	47
SAS Certified Base Programmer	5,366
SAS Certified Base Programmer for SAS 9	30,873
SAS Certified BI Content Developer for SAS 9	689
SAS Certified Clinical Trials Programmer Using SAS 9	377
SAS Certified Data Integration Developer for SAS 9	670
SAS Certified Data Integration Implementation Specialist for SAS 9.2	23
SAS Certified Deployment and Implementation Specialist for SAS Grid Manager	38
SAS Certified Developer V6	30
SAS Certified Developer V8	11
SAS Certified Enterprise Business Analytics Deployment Specialist for SAS 9.3 - Level 1	15
SAS Certified Enterprise Business Analytics Deployment Specialist for SAS 9.3 - Level 2	6
SAS Certified Intelligence Platform Migration Specialist for SAS 9.3	8

Program	Issued
SAS Certified Platform Administrator for SAS 9	665
SAS Certified Platform Deployment Specialist for SAS 9.2 - Level 1	97
SAS Certified Platform Deployment Specialist for SAS 9.2 - Level 2	33
SAS Certified Platform Deployment Specialist for SAS 9.2 - Level 3	22
SAS Certified Platform Deployment Specialist for SAS 9.2 - Level 4	18
SAS Certified Platform Migration Specialist for SAS 9.2	57
SAS Certified Predictive Modeler Using SAS Enterprise Miner 5	190
SAS Certified Predictive Modeler Using SAS Enterprise Miner 5.2	164
SAS Certified Predictive Modeler Using SAS Enterprise Miner 6	616
SAS Certified Predictive Modeler Using SAS Enterprise Miner 7	33
SAS Certified Professional - Application Development V6	57
SAS Certified Professional - Business Intelligence V6	63
SAS Certified Professional - Data Management V6	148
SAS Certified Professional V6	925
SAS Certified Professional V8	1,283
SAS Certified Statistical Business Analyst Using SAS 9: Regression and Modeling	207
SAS Certified Visual Analytics Technical Specialist for SAS 9	3
SAS Certified Warehouse Architect	37
SAS Certified Warehouse Development Specialist	33
SAS Certified webAF Developer: Server-side	5
SAS EBI Installation Certification - Level I	19
SAS EBI Installation Certification - Level II	1
SAS EBI Installation Certification - Level III	6
SAS EDI Installation Certification	10
<b>Total</b>	<b>52,393</b>

**Table 1 - Breakdown of SAS Certificates, as of 12 March 2013**

Below is a chart of SAS Certifications, showing the vast majority of SAS Certifications are for Base & Advanced Programming. (This will be expanded further later in this section.)

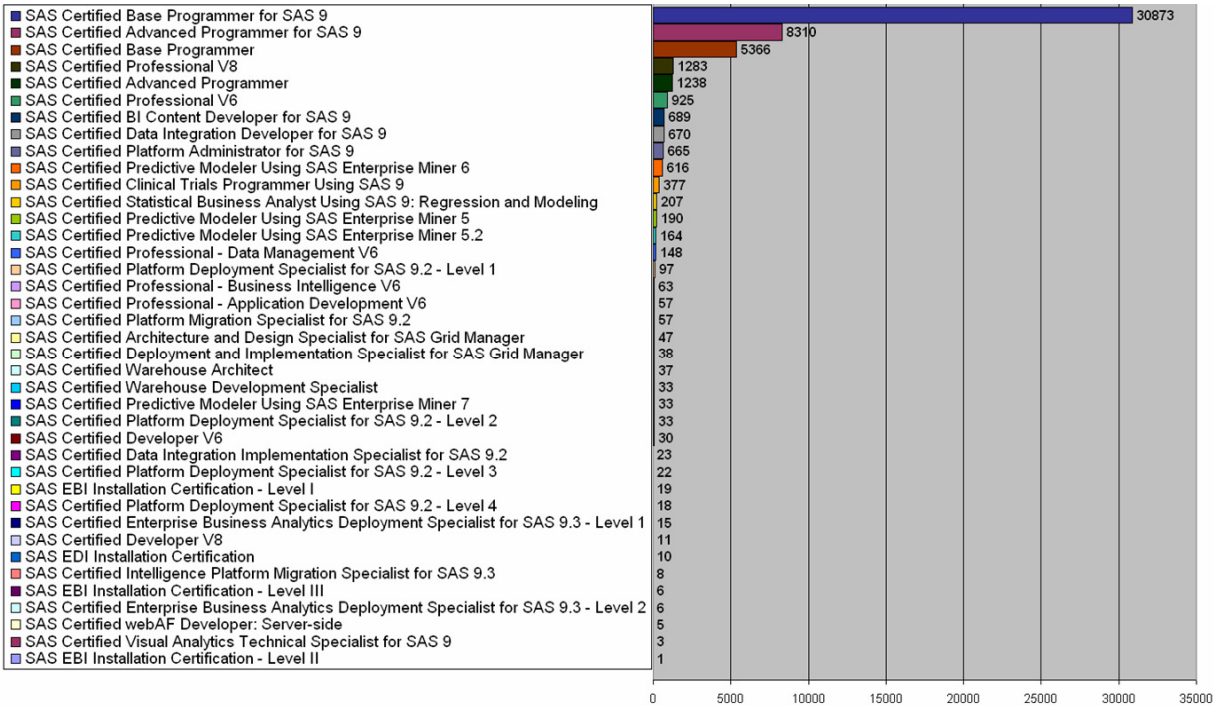


Figure 2 - Frequency chart of SAS Certifications

But how are these figures representative of the overall SAS community? How effective is 52,000 SAS Certifications?

On its home page, SAS quotes over 60,000+ sites worldwide. But how many SAS users does this represent? To come up with an estimate, let's try to determine an average number of users per site and extrapolate that.

But how to estimate users per site? Some sites are large SAS installations with many users, others are small consulting firms, some are individuals. So do we select 5, 10, 20, 50, 100? After liaising with SAS Australia's Technical Support team, we selected (*what I suspect is a rather conservative*) 10 users per site, on average. **This means there are approximately 600,000 SAS users worldwide.**

**Based on a total user base of 600,000 users, this means that (approximately) only 6.4 % or 1:15 of SAS users worldwide hold a SAS Certificate.**



Figure 3 - Estimated ratio of certified & non-certified SAS users

**Note:** It is important to clarify that these users may not necessarily be the “top” 6.4% of SAS users, but they are the 6.4% who have sought to validate their SAS knowledge.

Let’s take this one step further, and look beyond the “traditional” Base & Advanced programming certifications. **Currently there are 1907 SAS users worldwide who hold a certificate other than Base & Advanced programming.** (This is less than 5% of all SAS Certified Professionals.) Again, assuming 600,000 SAS users worldwide, this represents just 0.32 % (or approximately 1 in 300) of the estimated SAS community.

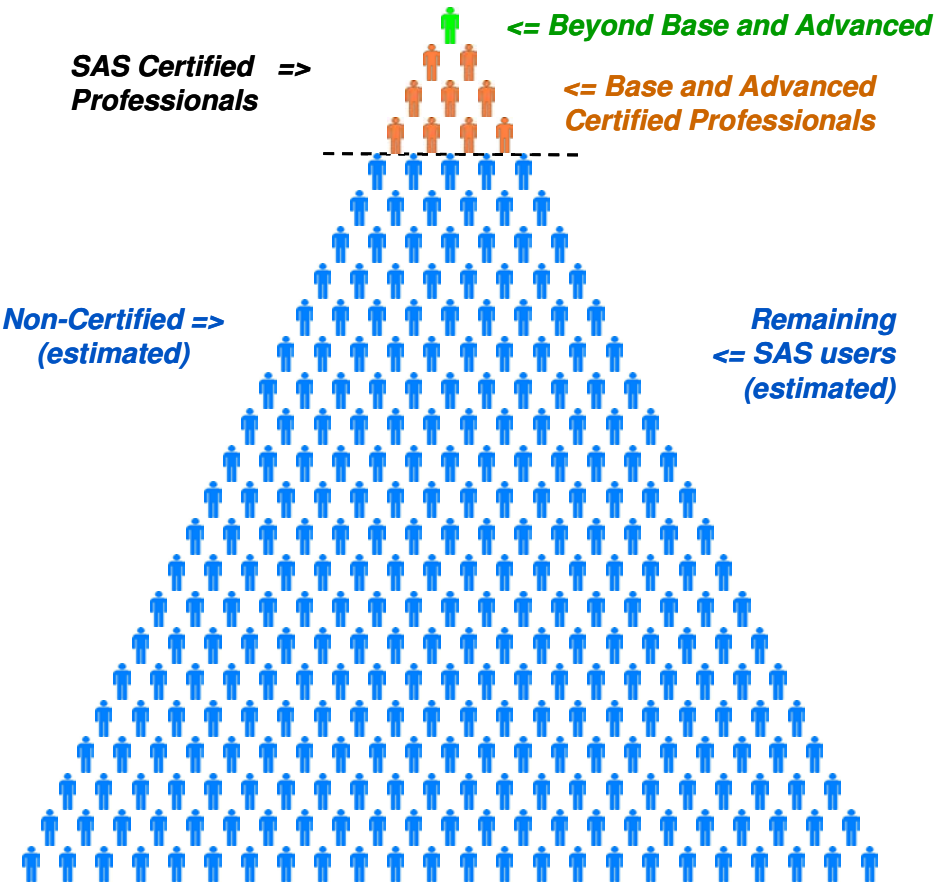


Figure 4 - Further Breakdown of SAS Certified Professionals in the SAS Community

As this diagram shows – even allowing for a wide variance in the assumed figure of 10 SAS users per SAS site, if you hold **any** SAS Certification other than Base or Advanced Programming, you are in a strong position to differentiate yourself within the SAS Community.

However, it does beg the question, why aren’t more SAS users SAS Certified? I expand on this in a later section.

SAS CERTIFICATIONS

So what certifications are available, and what is involved in becoming a SAS Certified Professional?

Note that although various there are SAS training courses recommended for each SAS Certification (and, as a SAS trainer, I would strongly recommend training as path to acquiring knowledge), training is not a pre-requisite for certification. **Certification is a validation of knowledge, not a validation of training.**

Below is a summary of the SAS Certifications currently listed in the support.sas.com/certify website. All certifications require sitting an examination, with a pass rate of around 70%. Some certifications also include some project work.

(This section is drawn heavily from the support.sas.com/certify website, and will only be covered here at a high level.)

SAS CERTIFIED BASE PROGRAMMER FOR SAS 9

<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Access Data</li> <li>• Creating Data Structures</li> <li>• Managing Data</li> <li>• Generating Reports</li> <li>• Handling Errors</li> </ul>	<p>Knowledge equivalent to the SAS Programming 1 &amp; Programming 2 training courses.</p>
<b>SAS CERTIFIED ADVANCED PROGRAMMER FOR SAS 9</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Accessing Data Using SQL</li> <li>• Macro Processing</li> <li>• Advanced Programming Techniques</li> <li>• Handling Errors</li> </ul>	<p>Pre-requisite: SAS Certified Base Programmer for SAS 9)</p> <p>Knowledge required: Equivalent to the SAS Programming 3, SQL &amp; Macro training courses.</p>
<b>SAS CERTIFIED CLINICAL TRIALS PROGRAMMING USING SAS 9</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Clinical Trials Process</li> <li>• Clinical Trials Data Structures</li> <li>• Import and Export Clinical Trials Data</li> <li>• Manage Clinical Trials Data</li> <li>• Transform Clinical Trials Data</li> <li>• Apply Statistical Procedures for Clinical Trials</li> <li>• Macro Programming for Clinical Trials</li> <li>• Report Clinical Trials Results</li> <li>• Validate Clinical Trial Data Reporting</li> </ul>	<p>Knowledge required: Equivalent to the SAS Programming1, Programming 2, Macro &amp; Report Writing 1 training courses.</p>
<b>SAS CERTIFIED PREDICTIVE MODELLER USING SAS ENTERPRISE MINER</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Data Preparation</li> <li>• Predictive Models</li> <li>• Model Assessment</li> <li>• Scoring and Implementation</li> </ul>	<p>Knowledge required: Equivalent to the SAS Enterprise Miner training course.</p>
<b>PLATFORM ADMINISTRATOR FOR SAS 9</b>	

<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Securing the SAS configuration</li> <li>• Checking the Status and Operation of SAS Servers</li> <li>• Monitoring, Logging, and Troubleshooting SAS Servers</li> <li>• Backing Up the SAS Environment</li> <li>• Administering Users</li> <li>• Administering Data Access</li> <li>• Securing Metadata</li> <li>• Moving Metadata</li> </ul>	<p>Knowledge required:</p> <p>SAS Platform Administration Fast Track training course.</p>
<b>SAS CERTIFIED DATA INTEGRATION DEVELOPER FOR SAS 9</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Creating Metadata for Source and Target Data</li> <li>• Creating Metadata for Target Data and Jobs</li> <li>• Working with Transformations</li> <li>• Working with Tables and the Table Loader Transformation</li> <li>• Working with Slowly Changing Dimensions</li> <li>• Defining Generated Transformations</li> <li>• Deploying Jobs</li> </ul>	<p>Knowledge required:</p> <p>Equivalent to the SAS Data Integration Studio Fast Track training course.</p>
<b>SAS CERTIFIED BI CONTENT DEVELOPER FOR SAS 9</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Business User Reporting Applications</li> <li>• Advanced Reporting Techniques and Roles</li> <li>• Creating Information Maps</li> <li>• Building a SAS BI Dashboard Application</li> <li>• Building Stored Processes</li> <li>• Utilizing Advanced Techniques with SAS Reports</li> <li>• Utilizing Multidimensional (OLAP) Data Sources</li> <li>• The Environment Metadata</li> </ul>	<p>Knowledge required:</p> <p>Equivalent to the SAS Business Intelligence Fast Track training course</p>
<b>SAS CERTIFIED STATISTICAL BUSINESS ANALYST USING SAS 9: REGRESSION AND MODELING CREDENTIAL</b>	
<p>Assessment topics include:</p> <ul style="list-style-type: none"> <li>• Anova</li> <li>• Linear Regression</li> <li>• Logistic Regression</li> <li>• Prepare Inputs for Predictive Model Performance</li> <li>• Measure Model Performance</li> </ul>	<p>Knowledge required:</p> <p>Equivalent to the SAS Statistics 1 and Predictive Modeling Using Logistic Regression training courses</p>

Table 2. Summary of SAS Certifications

## RETIRED CERTIFICATIONS

On the SAS Certification website are also listed some retired certifications. It is important to realise that once certified, certification(s) should be kept up to date. It may be nice to be a SAS version 6 Certified Professional, but this fails to prove you are proficient at programming in subsequent versions of SAS 8 & 9, let alone the suite of "platform" products – SAS Data Integration Studio, SAS Web Report Studio, etc.

## OTHER CERTIFICATIONS

There are other SAS Certifications listed which are not publicly available. These are highly specialised; typically in deployment of DI & BI platforms, platform migration, etc, and are typically held by SAS staff & partners. Time does not permit us to go into any more detail at this presentation.

## DIFFERING OPINIONS ABOUT SAS CERTIFICATION

Since gaining Base, Advanced, BI, DI & Platform Administration certification, I regularly receive a lot of questions about the SAS Certification process & the benefits of SAS Certification, and (sadly) requests for "shortcuts" to achieve without acquiring the underlying knowledge. What struck me most was how differently others viewed SAS Certification.

Here are some examples:

### "SAS Certification as an introduction to SAS"

One such typical email would read: *"I don't know anything about SAS, but I want to get started really quickly. How do I get certified?"*

My usual response is that this is not what SAS Certification is about. Certification is about knowledge; without knowledge (gained through training, study and/or experience) you are unlikely to pass the certification exam.

I tend to pitch SAS training or self-study as the "introduction" to SAS, and SAS Certification as the "validation".

### "SAS Certification as a substitute for training and/or experience"

You do not have to do SAS training in order to gain SAS Certification. However, you need to have the knowledge to pass. Some gain that knowledge through experience with no training, others through self-study.

This is a temptation to treat SAS Certification as a shortcut: SAS Training costs in the order of \$1000-\$2500, whereas SAS Certification costs in the order of \$200-300. It may be cheaper, but unless you have the underlying knowledge, you are unlikely to pass, and your money is wasted.

More importantly, this substitution would ultimately only serve to devalue what it means to be SAS Certified.

### "Will SAS Certification guarantee me a job?"

No, it won't. It will serve as an independent measure of your knowledge, and may reinforce your training and/or experience, but it's up to YOU to land the job.

Case in point #1: I'm currently only one of two SAS Certified Professionals in Australia with 5 SAS Certifications, but I still have to network & keep an eye on the job market.

This also raises the issue of why more SAS professionals are not SAS Certified. The fact is that SAS Certification is not mandatory, nor should it be. SAS Certification is simply another method (along with training, self-study, experience and referrals) to reinforce SAS credentials. For an established "SAS expert" – someone who may have published SAS books, been a chair or section leader at a SAS Global Forum (or equivalent) – there may be little need to further validate themselves with SAS Certification.

Case in point #2: I have 5 SAS Certifications, Jim Goodnight has none, but I certainly wouldn't want to go head-to-head with Jim Goodnight about our respective SAS knowledge.

SAS Certification won't get you the job, but it certainly may get you on the shortlist. However, landing the job is ultimately up to you.

## CONCLUSION

SAS released its Certification process as a way to promote their brand. I use SAS Certification as a way to promote my brand, but it cannot be used in isolation. Early on, I sought to use SAS Certification as a way of proving my SAS expertise. Like most people, I sought to be recognized as a leader in my field, and I saw SAS Certification as a way to

achieve that. However, in reality, SAS Certification proves a level of SAS knowledge (rather than expertise). Although certified, there will always be a need for me to further my SAS knowledge.

Like any business process, SAS Certification will continue to undergo review & refinement to meet the needs of its user base. The process does not define – not does it guarantee – SAS expertise. SAS expertise requires a combination of factors, of which SAS Certification is but one.

Bill Gibson, Chief Technology Officer, SAS Australia & New Zealand, drew a comparison between SAS Certification & a driving licence, and the analogy is very apt: Imagine living in a place where anyone could drive a car with no licence, no training and no experience – a scary concept. Then along comes an optional driving test called SAS Certification. SAS Certification does not necessarily make you a good driver, but at least it shows everyone that you know how to drive, you understand the basic “rules of the road”, and maybe that’s the head start you need to stand out & get ahead.

## REFERENCES

<http://www.sas.com/company/about/index.html>

<http://support.sas.com/certify>

## ACKNOWLEDGMENTS

Terry Barham, Manager Global Certification, SAS Cary

Bill Gibson, Chief Technology Officer, SAS Australia & New Zealand

Darrell Jones, General Manager, Partner Enablement, SAS Asia Pacific South

## RECOMMENDED READING

- *SAS® For Dummies®, Chris Hemedinger* (An excellent general introduction to SAS)
- *SAS Certification Prep Guide: Base Programming for SAS 9, Third Edition*
- *SAS Certification Prep Guide: Advanced Programming for SAS 9, Third Edition*

## CONTACT INFORMATION

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