Data Mining Certificate Program

Offered by SAS® Global Academic Program

For more information about the Data Mining Certificate Program or any service offered by the SAS Global Academic Program, contact us at:

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"In today's hypercompetitive environment, every enterprise is striving to create business value using data mining and analytics. Our partnership with SAS allows us to train and educate both full-time students (on campus) and working professionals (via online instructions) about how to apply advanced analytics and data mining techniques using enterprise-level, state-of-the-art software for creating business value."

Dr. Goutam Chakraborty
Professor (Marketing) and founder of SAS and OSU Data Mining Certificate Program
Oklahoma State University

"By partnering with SAS, I believe we can more quickly provide an educational experience for our students to meet the growing marketplace demand."

Mike Hardin
Professor of Statistics
Department of Information Systems, Statistics and Management Science
University of Alabama

"The Data Mining Certificate provides students with the statistical knowledge and SAS programming experience they need to make an immediate impact in the world of business. It provides prospective employers with a benchmark for measuring data mining skills in the analytical world."

Morgan Wang
Director of Data Mining Program
University of Central Florida

Because SAS is the world's leading developer of business intelligence analytical software and the market leader in data mining, individuals with strong SAS skills are in great demand. The SAS Global Academic Program has created the data mining certificate program to better assist universities developing a curriculum which incorporates SAS data mining expertise. The certificate will give students a competitive advantage in the marketplace. The certificate documents students' course work utilizing SAS' award-winning data mining technology. Universities participating in this program, as well as SAS, believe this knowledge will enable students to have an immediate impact in the business world.

Designed using pre-existing courses, or ones developed in consultation with SAS Global Academic Program staff, SAS will co-sponsor the certificate, provided the program meets the requirements listed on the reverse side of this flyer. Upon completion of the program, students will earn the certificate, which will be administered and distributed by their institution.

Helping institutions of higher learning incorporate SAS technology into their academic programs

The certificate must include a minimum of 12 semester hours of course credit or the equivalent and must cover the topics listed below:

Business Perspective

The program should address data mining from a business perspective and should address problem definition, team building and solution strategies, including data sources, business objectives and implementation requirements.

Data Warehousing/Data Preparation

Before data analysis and predictive modeling can begin, the data must be available for use. Therefore, data mining must begin with a basic understanding of where the data is stored and how it can be brought together for analysis purposes. To that end, the program must include a data warehousing/data preparation component that consists of:

- Basic data warehousing methodology.
- Importing data into the SAS System.
- Basic macro and SQL programming.
- Data cleansing.
- Data exploration and visualization.
- Missing value imputation.

Statistics

A thorough knowledge of the statistical techniques used in data mining is essential to an informed use of those techniques. As a result, the program must include:

- An introduction to probability.
- Statistical sampling techniques.
- Linear and logistic regression.
- Decision trees.
- Neural networks.
- Unsupervised modeling, such as cluster analysis and market basket analysis.

Some coverage of SAS analytical software, such as SAS/STAT®, SAS/QC® and SAS/ETS®, should be an integral part of the statistical component of the program.

Data Mining Using SAS® Enterprise Miner™

The final aspect of the program is hands-on experience with data mining. This part of the program should include some discussion of data mining methodology and should incorporate the use of SAS Enterprise Miner, including, as a minimum, extensive use of the following nodes:

- Input Data Source
- Data Partition
- Variable Selection
- Multiplot and/or StatExplore
- Association
- Transform Variables
- Impute
- Regression
- Decision Tree
- Neural Network
- Model Comparison

Throughout the program, students should be involved in hands-on analysis of data. The program should culminate with the completion of one or more major data mining projects. The results of these data mining projects should be presented in a formal manner to ensure that the student has firsthand experience in delivering the findings to a group of their peers and upper management representatives.

About SAS® Global Academic Program

The SAS Global Academic Program team is located within the Education Division at SAS. Headquartered in Cary, NC, the Global Academic Program staff works with universities and community colleges from around the country to incorporate SAS technology into their curricula. In addition to the Data Mining Certificate Program, the SAS Global Academic Program can provide a number of other services, including curriculum consulting, guest speakers, academic trainer's kits and business symposiums.

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To contact your local SAS office, please visit: **www.sas.com/offices**