



Credit Risk Modeling Using SAS®

Duration

3 days

Delivery

Classroom

Course code

BB3C61

Online registration

www.sas.com/uk/education/courses/bb3c61.html

In this course, learners 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 behaviour and performance of credit risk models.

Prerequisites

Before attending this course, you should have business expertise in credit risk and a basic understanding of statistical classification methods. Previous SAS® software and SAS® Enterprise Miner™ experience is helpful but not necessary.

Course contents:

Business Problems and Statistical Solutions:

- application scoring, behavioral scoring, and profit scoring
- bankruptcy prediction models
- credit ratings
- the Basel I and Basel II regulation

- standard approach versus IRB approaches for credit risk
- PD versus LGD versus EAD
- expected loss versus unexpected loss.

Sampling and Data Preprocessing

- selecting the sample
- types of variables
- missing values
- outlier detection and treatment
- exploratory data analysis
- categorisation
- weight of evidence coding and information value
- segmentation
- reject inference (hard cut-off augmentation, parceling, etc.).

Developing PD Models for Basel II

- basic concepts of classification
- classification techniques: logistic regression, decision trees, linear programming, k-nearest neighbor, cumulative logistic regression
- input selection, such as filters, stepwise regression, and p-values
- setting the cut-off (strategy curve, marginal good-bad rates)
- measuring scorecard performance
- splitting up the data: single sample, holdout sample, cross-validation
- performance metrics, such as ROC curve, CAP curve, and KS-statistic
- defining ratings
- scorecard alignment and implementation.

UK CONTACT INFORMATION

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Developing LGD and EAD Models for Basel II

- modeling loss given default (LGD)
- defining LGD, such as market approach and work-out approach
- time weighted versus default weighted versus exposure weighted LGD
- choosing the discount factor and the workout period
- dealing with incomplete workouts
- economic downturn LGD
- modeling LGD using segmentation
- modeling LGD using regression
- shaping the Beta distribution for LGD
- modeling LGD using two stage models.

Validation, Backtesting, and Stress Testing

- validating PD, LGD, and EAD models
- quantitative versus qualitative validation

- backtesting for PD, LGD, and EAD
- backtesting model stability (system stability index)
- backtesting model discrimination
- backtesting model calibration using the binomial, Vasicek, and chi-squared tests
- traffic light indicator approach
- backtesting action plans
- through-the-cycle (TTC) versus point-in-time (PIT) validation
- benchmarking
- internal versus external benchmarking
- Kendall's tau and Kruskal's gamma for benchmarking
- use testing
- data quality
- documentation
- corporate governance and management oversight
- stress testing for PD, LGD, and EAD models

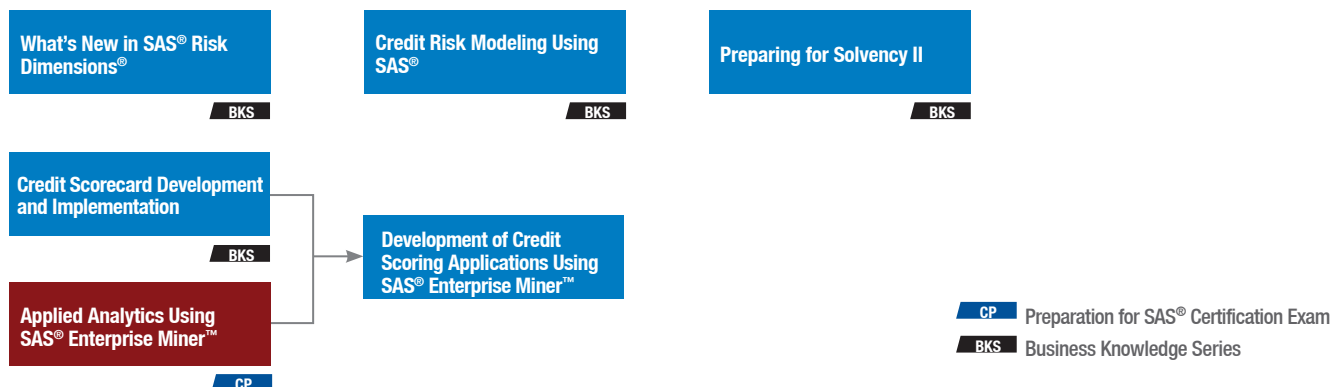
- static versus dynamic stress testing
- correlated trend analysis
- scorecard management
- low default portfolios (LDPs): implementation and validation
- likelihood approaches to LDPs
- rating mapping approaches to LDPs
- risk drivers for CCF
- CAP curves for LGD and CCF
- correlations between PD, LGD, and EAD
- calculating expected loss (EL)
- cohort/fixed time horizon/momentum approach for CCF
- modeling exposure at default (EAD): estimating credit conversion factors (CCF).

Software addressed:

This course addresses the following software product:

- SAS® Enterprise Miner™.

Training Path for Risk Manager



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