# Rating Based Modelling and Stress Testing (8 hours)

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**PROGRAM AND AIM OF THE COURSE**

The aim of the course is to introduce some basic concepts related to Basel 2 Regulation and IRB approach, in particular development of credit risk models for the estimation of the Expected Loss (PD, LGD, CCF/EAD and Stress Test). The course is divided into four parts:

***Part I: Overview of IRB Regulation and credit risk models***

The first part provides an overview of the Basel 2 Regulation main concepts, focusing on credit risk and IRB Approach, as well as credit risk models:

- **Overview of Basel 2 Regulation and IRB Approach**
  - ✓ Basel 2 Regulation: general overview and key concepts
  - ✓ IRB Approach: aim and benefits

- **General concepts for credit risk models**
  - ✓ regulatory references
  - ✓ segmentation
  - ✓ default definition
  - ✓ general overview of credit risk models (PD, LGD, CCF/EAD, Stress Test)

***Part II: Rating models for SME/Corporate portfolios***

The second part provides an overview of the best practice approach for the development of rating models for corporate clients, illustrating all the steps of the development process; the theoretical explanation is integrated with a case study:

- **Rating models development – SME and Corporate portfolios – development process**
  - ✓ introduction
  - ✓ behavioural and application models
  - ✓ possible approaches
  - ✓ overview of statistical model (logistic regression model)
  - ✓ development sample construction
  - ✓ variable transformation and treatment of outliers and missing values
  - ✓ long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, “Good/Bad” histogram, average ratios for good and bad, ...
  - ✓ short list selection: performance and correlation analysis
  - ✓ model selection
  - ✓ model performance
  - ✓ model calibration
  - ✓ mapping to master scale

- **Rating models development – SME case study**
  - ✓ long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, "Good/Bad" histogram, average ratios for good and bad, ...
  - ✓ short list selection: performance and correlation analysis
  - ✓ model selection
  - ✓ model performance

***Part III: LGD and CCF/EAD models***

The third part provides a brief overview of the best practice approach for the development of LGD and CCF/EAD models for retail and corporate clients, illustrating all the steps of the development process:

- **LGD models development – development process**
  - ✓ introduction
  - ✓ available approaches
  - ✓ overview of econometric model (multiple linear regression)
  - ✓ overview of Gross LGD approach
  - ✓ Gross LGD calculation
  - ✓ treatment of open defaults
  - ✓ cash-flows discounting
  - ✓ model selection
  - ✓ model performance

- **CCF/EAD models development – development process**
  - ✓ introduction
  - ✓ available approaches
  - ✓ overview of econometric model (multiple linear regression)
  - ✓ CCF/EAD calculation criteria for different products
  - ✓ model selection
  - ✓ model performance

***Part IV: Stress Test***

The fourth part aims at proving an overview of the approach used for Stress Test models development):

- **Use test and use of credit risk models in the banking process**
  - ✓ introduction
  - ✓ scenarios
  - ✓ macroeconomic factors and their correlation
  - ✓ models estimation

***READING LIST***


- Oesterreichische Nationalbank (OeNB) and Financial Market Authority (FMA) *"Rating models and validation"*, Vienna, 2004.