Federal Reserve Board of Governors

# Course Description for ALM Model Hands-On Lab (S&R Technology Lab)

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# ALM Model Hands-On Lab (S&R Technology Lab)

The Board of Governors of the Federal Reserve System is proud to offer technology-related courses developed and hosted by the S.T.R.E.A.M./Technology Lab at the Federal Reserve Bank of Chicago, Chicago, Illinois. For over nine years, the S.T.R.E.A.M./Technology Lab has pursued a unique approach to examiner technology training by combining lectures with hands-on exercises. The exercises reinforce concepts by allowing participants to input commands into software applications and observe how they work. The Technology Lab is outfitted with many applications and operating systems found in the financial industry.

## Type of Participant Targeted

The ALM Model course is a 4.5-day course intended for examiners with a solid understanding of financial concepts who have exam responsibility for reviewing ALM models.

## Prerequisites

Class registration is limited and completion of prerequisites may apply. Contact Kristin LaPorte at 312-322-2161 directly for registration information and availability of this class.

## Course Overview

In addition to asset-liability management theory, this course offers hands-on ALM training to commissioned examiners responsible for ALM model reviews at regional and large complex banking organizations.

## Class Objectives

After completing the course, the participant, at a minimum, will be able to demonstrate the following skills:

- Assess the adequacy and accuracy of accrual book IRR model implementations
- Assess the appropriateness of the general model setup
- Assess the accuracy and reasonableness of critical model assumptions
- Assess and test whether critical assumptions have been correctly implemented in a model
- Identify common model risk control weaknesses
- Assess the overall adequacy of model risk management practices

## Post-Course Intervention

None

## Overview of ALM Curriculum

| Subject | Approximate Class Hours |
|---|---|
| Introduction | 1 |
| ALM Modeling Techniques | 2 |
| Model Mechanics | 6 |
| Modeling Interest Rates | 4 |
| Modeling Non-maturity Deposits | 4 |
| Modeling Assets with Prepayments | 4 |
| Modeling Instruments with Imbedded Options | 2 |
| Modeling Instruments with an ALM Framework | 3 |
| ALM Model Risk Management | 2 |
| Course Summary and Wrap-up | 2 |
| Total Lecture & Exercise Hours | 30 |

(Total number of hours and topics may vary from class to class)

## LEARNING OBJECTIVES

| Module | Learning Objectives |
|---|---|
| ALM Modeling Techniques | • Describe model types & techniques that exist for valuing and measuring long and short term A/L risk.<br>• Identify which types and techniques are available in the ALM model.<br>• Recognize the strengths and weaknesses of different techniques.<br>• Summarize key assumptions that are common to all model types and illustrate how these common assumptions form the foundation for the scope of our course's activities. |
| Model Mechanics | • Review the model process flow common to ALM Models<br>• Discuss the importance of the chart of accounts (COA) setup<br>• Discuss the importance of appropriate scenario selection<br>• Demonstrate model process flow |
| Modeling Interest Rates | • Identify sources and uses of interest rates in ALM models |

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| | • Explain how interest rates and interest rate spreads can be chosen or derived in ALM models<br>• Evaluate why some interest rate choices and spread derivation methodologies are preferable to others<br>• Describe the impact that different interest rate choices can have on model results<br>• Examine interest rates and spreads |
| Modeling Non-maturity Deposits | • Review NMD definition and importance<br>• Discuss NMD assumption perspectives for earnings simulation and valuation<br>• Demonstrate the input of NMD assumptions and describe implementation challenges<br>• Provide practical examination suggestions |
| Modeling Assets with Prepayments | • Explain the importance of prepayments in ALM modeling<br>• Describe different types of prepayment measurements and prepayment models<br>• Describe the different ways prepayment assumptions and models are implemented in earnings simulation and EVE/valuation models<br>• Explain supervisory expectations<br>• Provide examination tips for reviewing prepayment assumptions in a model on an exam |
| Modeling Instruments with Imbedded Options | • Identify and discuss instruments with embedded options<br>• Describe the challenges inherent in modeling optionality<br>• Demonstrate the impact on model results when instruments with embedded options are modeled deterministically v. stochastically<br>• Explain how complex asset and liability structures are handled in ALM models<br>• Explain procedures used to examine the set up and functioning of complex instruments in base case and stress scenarios during an examination |
| Liquidity Modeling within an ALM Framework | • Highlight measurement expectations outlined in interagency guidance<br>• Describe current model types & techniques that exist for measuring cash flow and stress scenarios |

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| | • Show how the ALM model may be used to model liquidity.<br>• Summarize key assumptions that is common to liquidity modeling. |
| ALM Model Risk Management | • Develop a general framework from which to approach a model review<br>• Identify and discuss supervisory expectations for broader model risk management topics, such as expertise, documentation, production control, change control standards, and reporting practices |

## Class Size

The optimal class size for the ALM Model course offerings is approximately 20 participants. To provide sufficient variety of interaction among class participants, the minimum class size should be 10 participants.

## Instructors

The ALM Model Lab course includes 3-4 instructors from the Federal Reserve System.