



2-Day Programming for Finance Using VBA

Course Description: As innovation in finance develops and transactions become more complex they require a level of analysis that surpasses the ability of a standard spreadsheet program and necessitate the implementation of computer programming. The most effective way of harnessing the power of programming for finance is to learn Visual Basic Applications (VBA) within the context of relevant problems.

This course will take participants through the basics of working in VBA's integrated development environment to ultimately writing intermediate level code that can be used to amortize thousands of loans or run powerful simulations.

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(General) (Declarations)

' Define 3D arrays for taking all loan data
Dim PrepayCubeRange As Variant
Dim DefaultCubeRange As Variant

' Assign arrays to ranges from workbook
PrepayCubeRange = Range("PrepayTable")
DefaultCubeRange = Range("DefaultCurveTable")

Application.StatusBar = "Loading Loan Data..."

' Fill Prepay and Default Arrays Prior to Computation
For k = 1 To TotalLoans
    For l = 1 To TotalPeriods
        PrepayCube(k, l, 0) = PrepayCubeRange(l, PrepayFlagArray(k, 0)) * PrepayMultiple
        DefaultCube(k, l, 0) = DefaultCubeRange(l, DefFlagArray(k, 0)) * DefaultMultiple
    Next l
Next k

Application.StatusBar = False

*****
' NOTIONAL LOAN AMORTIZATION
*****

' Loop through each loan
For k = 1 To TotalLoans

' Clear the notional amort arrays
For q = 0 To TotalPeriods
    NotionalAmortArray(q, 0) = 0
    NotionalAmortArray(q, 1) = 0
    NotionalAmortArray(q, 2) = 0
    NotionalAmortArray(q, 3) = 0

```

EXPERIENCE: *Founded by former investment banker and financial author Keith Allman, and now composed of three other trainers and support staff, Enstruct is run by people who know how to build financial models. Given this depth of knowledge, courses and materials are designed from a practitioner's point of view. You will not find yourself sitting in an Enstruct course and thinking, "How do I use what the instructor is saying?"*

ACCREDITATION: *Enstruct is committed to being the premier quantitative training institution and is going through multiple accreditation processes. Already we Enstruct is registered with the CFA Institute as an Approved Provider of continuing education programs. Our Structured Finance Analytics with VBA is eligible for 26 CE credit hours as granted by CFA Institute. If you are a CFA Institute member, CE credit for your participation in this program will be automatically recorded in your CE Diary.*



AGENDA

Day 1

Introduction to Object Oriented Programming (OOP)

- Introduction to the Visual Basic Editor (VBE)
- Understanding Objects, Properties and Methods
- Functions and Subroutines
- Code Writing Conventions
- Working in Excel's Integrated Development Environment
- Project Explorer, Properties, and Watch Window
- The Object Library

Subroutines: Commanding Excel

- Creating a subroutine
- Using the Macro recorder
- Variables
- Reading data from Excel into VBA
- FOR NEXT loops
- IF THEN ELSE statements
- Writing Data from VBA into Excel

Functions: Returning a Value

- Creating a User Defined Function (UDF)
- Using a UDF
- Creating a custom add-in for UDFs

Amortizing a Loan in VBA

- Planning a program and anticipating user control issues
- Working with arrays in VBA
- Methods for speeding up programs
- Exporting large data sets

Amortizing a Pool of Loans in VBA

- Managing large data sets in Excel and VBA
- Creating dynamic arrays in Excel for VBA use
- Working with multiple arrays
- Advanced array and looping interaction
- Aggregating looped data

Day 2

Monte Carlo Simulation

- Principles of simulation
- Integrating correlation and Cholesky decomposition
- Random number generation
- Tracking simulation results

Scenario Generation

- Creating a system to manage sensitivity analysis
- Automatically generating output reports
- Exporting output reports
- Creating a printer system
- Sending output reports via email directly in Excel

Optimization Using Excel and VBA

- A template for automating goal seek
- Integrating optimization in structured finance model
- Using optimization to determine a Company's most efficient capital structure

Expected Loss Methodology in Code

- Creating a system to analyze structured deals using a Moody's style methodology
- Determining scenario probability based on distribution
- Determining ratings from the results

COURSE INFORMATION

Requirements

A basic to intermediate knowledge of Excel, and a basic understanding of finance. Participants will need a laptop computer with Microsoft Excel, and a CD-ROM drive.

Pricing

The fee for the 2-day training is \$2,500 per person. Payments can be made directly to Enstruct, or with credit card on our website, www.enstructcorp.com. Group rates are available for two or more employees from the same company.

Logistics

Enstruct is dedicated to being the premier organization for professional finance training, and therefore restricts class size to 20 professionals. Participants will be registered in the order that they submit course fees. Such fees will cease to be refundable four weeks prior to the training. Registered participants who cancel after the four-week deadline may apply their payment to a future Enstruct course. If registration becomes full, additional interested parties will be placed on a wait list. Participants on the wait list will receive a full refund if space does not become available.

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