

# Advanced Modeling with Excel and Visual Basic for Applications Training

## Description

### Introduction:

Financial modeling is an essential skill for finance professionals and students. Excel VBA (Visual Basic for Application, the embedded programming language in Excel) allows you to create powerful spreadsheet models by overcoming the limitations of Excel and automating spreadsheet procedures . In this course, you will learn the fundamentals of Excel VBA and to apply it to developing financial models for various purposes. Upon completion of the course, you should be able to:

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- Understand Excel VBA and its application in finance
- Design simple spreadsheet models for financial data analysis using Excel VBA

### Course Content

### Excel VBA Fundamentals

Participants will learn the fundamentals of Excel VBA and prepare themselves to create simple financial models in Part II. Small programs will be used to illustrate the underlying programming concepts.

- The VBA programming environment
- Variables and constants
- Macros
- Built-in VBA functions and operators
- User-defined functions
- Branching and looping
- Object-based concept: Objects, methods and properties
- The Range object
- Debugging
- The following additional topics may also be covered if time allows:
- Arrays
- Procedures

- Custom dialog boxes
- Workbook and worksheet events
- Chart objects

**Financial Modeling**

Participants will apply VBA programming concepts and skills to build simple yet real-world financial models. The techniques of writing good models will also be discussed. As the scope of financial modeling is huge, topics have to be selective. The following shows a list of possible topics. Actual coverage depends somewhat on the finance background of the class.

**Loan amortization**

- Simple model
- Iteration: The bisection approach
- Allowance for changing interest rates or repayment period

**Financial planning**

- Retirement planning
- Portfolio restructuring

**Market history analysis**

- Normal and real growth of stocks
- Growth of investment in different assets

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**Stock simulation**

- Stock volatility estimation
- The geometric Brownian motion and the log-normal distribution
- Stock price simulation

**Option pricing**

- Different option strategies
- The Black-Scholes option pricing model
- Implied volatility estimation
- Options portfolio
- The binomial models