# Contents



# Advanced Financial Modeling Course

## Investment Banking & Private Equity Focus

☐ A Personal Gift

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For: Excellence in Private Equity at PE Club, Brussels

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Course Overview

This comprehensive course teaches you how to leverage Visual Studio Code and Python for advanced financial modeling in Investment Banking and Private Equity. Specifically designed for PE professionals who want to combine traditional finance expertise with modern technical skills.

You'll learn industry-standard techniques, build sophisticated models, and master the tools used by top-tier financial professionals - all while working at one of Europe's leading PE firms.

Prerequisites

- Basic understanding of finance and accounting ☐ (You already have this from PE Club!)
- Familiarity with Excel (we'll transition those skills to Python)
- No prior programming experience required
- Windows PC (Windows 10/11) - course instructions are Windows-focused
- Recommended: GitHub Copilot subscription ($10/month) for AI-assisted learning

Course Structure

Module 1: Setting Up Your Financial Modeling Environment

- Installing and configuring VS Code for finance
- Python setup and essential libraries
- Jupyter Notebooks integration
- Version control with Git for model tracking

Module 2: Python Fundamentals for Finance

- Data types and structures for financial data
- NumPy for numerical computations
- Pandas for financial data analysis
- Date/time handling for financial periods

Module 3: Financial Data Analysis

- Importing data from Excel, CSV, and APIs
- Data cleaning and preprocessing
- Time series analysis

- Financial statement analysis automation

Module 4: Investment Banking - DCF Modeling

- Building revenue projections
- Operating expense modeling
- Working capital analysis
- Free cash flow calculations
- WACC computation
- Terminal value calculations
- Sensitivity and scenario analysis

Module 5: Investment Banking - LBO Modeling

- Sources and uses of funds
- Debt schedule construction
- Cash flow waterfall
- Returns analysis (IRR, MOIC)
- Exit scenario modeling

Module 6: Investment Banking - M&A Analysis

- Accretion/dilution analysis
- Synergy modeling
- Purchase price allocation
- Pro forma financials
- Transaction comparables

Module 7: Private Equity Modeling

- Portfolio company modeling
- Fund-level returns analysis
- Vintage year analysis
- J-curve modeling
- Waterfall calculations (LP/GP splits)

Module 8: Advanced Topics

- Monte Carlo simulations for risk analysis
- Option pricing models
- Credit analysis and covenant modeling
- Visualization with Plotly and Matplotlib
- Building interactive dashboards

Module 9: Real-World Projects

- Complete LBO model case study
- Tech company DCF valuation
- PE fund analysis
- M&A transaction model

Learning Outcomes

By the end of this course, you will: - Build sophisticated financial models entirely in Python - Automate repetitive financial analysis tasks - Create dynamic, scalable models superior to Excel - Produce professional-grade financial reports and visualizations - Apply version control to track model changes - Understand how to integrate real-time data into your models

Time Commitment

- Total Duration: 40-50 hours
- Recommended Pace: 4-6 weeks (8-10 hours/week)
- Self-Paced: Complete at your own speed

Course Materials

Each module includes: - Detailed lesson notes - Python code examples - Practice exercises - Solution files - Real-world datasets - Template models

Getting Started

Begin with `Module_01_Setup/01_Getting_Started.md` to set up your environment.

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