



**REFM**  
Model for Success



**2015-2016  
Corporate and University  
Training Offerings**



**"A high-impact training session for our analysts, worth every dollar."**

**- MATTHEW CASPER**

*MANAGING DIRECTOR, PARK HILL  
Affiliate of The Blackstone Group*

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## Training clients include



## Training content authorship

### REAL ESTATE FINANCE AND INVESTMENTS

RISKS AND OPPORTUNITIES

Peter Linneman, Ph.D.  
Third Edition



Training content is created by REFM founder Bruce Kirsch, who is an Editor of the Third Edition of the top graduate-level real estate finance textbook, *Real Estate Finance and Investments: Risks and Opportunities* by The Wharton School's Emeritus Professor of Real Estate, Dr. Peter Linneman.

Mr. Kirsch was previously an Adjunct Faculty member in Real Estate at Georgetown University, and he holds an MBA in Real Estate from The Wharton School and a BA in Communication from Stanford University. Prior to founding REFM, Mr. Kirsch worked in analytical roles for two top real estate platforms and a global mutual fund manager.

# OVERVIEW

## REFM TRAINING

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Real Estate Financial Modeling (REFM) training enables you to master basic and advanced concepts and techniques of commercial real estate, Microsoft Excel, finance, and real estate transaction and partnership financial modeling. All hands-on training other than for the HP 12c calculator is exclusively Microsoft Excel-based and is delivered assuming that each participant will be following along on their own computer. All Excel-based training includes reusable, fully-unlocked Excel files.

### Benefits of training with REFM include:

- improved analysis capabilities, quicker work turnaround and fewer mistakes
- increased confidence in one's Excel skills
- improved financial modeling knowledge, understanding and customization capabilities
- sharpened presentation of a transaction's financials
- heightened credibility internally and with potential partners, lenders and investors

### Additional benefits for university students:

- stronger performance in internship and job interviews
- sharpened presentation of case study financials
- stronger performance on academic assignments and exams.

## Training Formats

Training is available on-site and via online web meetings. In all sessions, participants are encouraged to ask questions as they arise.



### Slide Show

Instructor lecture with interactive real-time Q&A.



### Hands-On

Instructor lecture, with training participants following along in Excel in real time.

Participants perform a series of exercises to ensure they are grasping the lesson and mastering the concepts and technical skills being taught.

All exercise solutions are included and discussed.

# POPULAR 2-DAY AGENDAS

Beginner / Advanced	Page No.	Session Length (hours)	Slide Lecture	Hands-On Exercises	Level of Difficulty	Applicable Property Types
DAY ONE						
Identifying Risks and Opportunities in Commercial Real Estate	10	1.0	✓		Easy	All income-producing and unit-sales based
Demystifying the Excel Pro-Forma: What It Is and How You Can Begin To Master It	12	1.0	✓		Easy	All income-producing and unit-sales based
Real Estate Development Modeling Basics	13	1.0	✓		Easy	All income-producing and unit-sales based
Mixed-Use Apartment/Multi-Family Building Development Modeling	23	4.0		✓	Medium	Multi-family, retail
DAY TWO						
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling (Level 3) Bootcamp	34	4.0	✓	✓	Medium	All income-producing and unit-sales based
Mixed-Use For-Sale Condominium Building/Housing Subdivision Development Modeling	23	4.0		✓	Medium	Condominium, retail, housing



# POPULAR 2-DAY AGENDAS

"The New York Course"	Page No.	Session Length (hours)	Slide Lecture	Hands-On Exercises	Level of Difficulty	Applicable Property Types
DAY ONE						
Real Estate Analysis Excel Toolkit	18	5.0		✓	Medium	All income-producing and unit-sales based
Mixed-Use Apartment/Multi-Family Building Development Modeling	23	4.0		✓	Medium	Multi-family, retail
DAY TWO						
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling (Level 3) Bootcamp	34	4.0		✓	Medium	All income-producing and unit-sales based
Core- and Core-Plus Real Estate Private Equity Fund Modeling	33	4.0		✓	Medium	All income-producing



# TRAININGS AT A GLANCE

	Page No.	Session Length (hours)	Slide Lecture	Hands-On Exercises	Level of Difficulty	Applicable Property Types
<b>REAL ESTATE PRINCIPLES AND KEY CONCEPTS</b>						
Introduction to the Real Estate Business	10	1.0	✓		Easy	All income-producing and unit-sales based
Identifying Risks and Opportunities in Commercial Real Estate	10	1.0	✓		Easy	All income-producing and unit-sales based
Real Estate Finance 101	11	1.0	✓		Easy	All income-producing and unit-sales based
How Real Estate Developers Price The Dirt: Residual Land Valuation and Comparable Sales	12	1.0	✓		Easy	All income-producing and unit-sales based
Demystifying the Excel Pro-Forma: What It Is and How You Can Begin To Master It	12	1.0	✓		Easy	All income-producing and unit-sales based
Real Estate Development Modeling Basics	13	1.0	✓		Easy	All income-producing and unit-sales based
Truly Understanding Capitalization (Cap) Rates	13	1.0	✓		Easy	All income-producing
Truly Understanding IRR (Internal Rate of Return)	14	1.0	✓	✓	Easy	All income-producing and unit-sales based
Commercial Real Estate Business Fundamentals for Law Associates	15	4.0	✓		Easy	All income-producing and unit-sales based
Principles of Commercial Real Estate Finance	16	16.0	✓	✓	Medium	All income-producing and unit-sales based
<b>FINANCIAL MODELING SKILLS FOUNDATIONS</b>						
HP12c Financial Calculator Skills For Real Estate	17	1.0	✓	✓	Easy	All income-producing and unit-sales based
Real Estate Analysis Excel Toolkit	18	5.0		✓	Medium	All income-producing and unit-sales based
Excel For Real Estate (Level 1) Bootcamp	19	3.0		✓	Medium	All income-producing and unit-sales based
Real Estate Finance (Level 2) Bootcamp	20	3.0		✓	Medium	All income-producing and unit-sales based



# TRAININGS AT A GLANCE

	Page No.	Session Length (hours)	Slide Lecture	Hands-On Exercises	Level of Difficulty	Applicable Property Types
<b>PROPERTY-SPECIFIC TRANSACTION MODELING</b>						
Apartment/Multi-Family Property Operating Projection and Acquisition Screening Analysis	21	4.0		✓	Medium	Multi-Family
Apartment / Multi-Family Building Acquisition & Individual Unit Renovation	22	4.0		✓	Medium	Multi-Family
Mixed-Use Apartment / Multi-Family Building Development Modeling	23	4.0 or 6.0		✓	Medium	Multi-Family
Mixed-Use For-Sale Condominium Building / Housing Subdivision Development	24	4.0 or 6.0		✓	Medium	Residential condominium, housing
Multi-Tenant Commercial Property Acquisition Modeling w/ ARGUS Cash Flow Projection Customization	25	3.0		✓	Medium	Office, industrial, retail
Office Property Operating Projection and Acquisition Screening Analysis	26	4.0		✓	Medium	Office
Mixed-Use Office / Industrial Building Development Modeling	27	4.0 or 6.0		✓	Medium	Office, industrial
Commercial Space Comparative Lease Analysis From Both Landlord & Tenant Perspectives	28	2.0		✓	Medium	Office, industrial, retail
Hotel Property Acquisition and Renovation Modeling	29	4.0		✓	Medium	Hotel
Hotel Property Development Modeling	30	4.0 or 6.0		✓	Medium	Hotel
Retail Property Operating Projection and Acquisition Screening Analysis	31	4.0		✓	Medium	Retail
Retail Property Development Modeling	32	4.0 or 6.0		✓	Medium	Retail
<b>EQUITY JVs AND PRIVATE EQUITY FUNDS</b>						
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling (Level 3) Bootcamp	33	4.0	✓	✓	Medium	All income-producing and unit-sales based
Core- and Core-Plus Private Equity Fund Modeling	34	4.0	✓	✓	Medium	All income-producing
<b>DEBT FINANCING AND NOTE MODELING</b>						
Single Property Transaction Debt Financing Modeling	35	4.0		✓	Medium	All income-producing and unit-sales based
Distressed Commercial Mortgage Note Acquisition Modeling	36	1.5	✓	✓	Medium	All income-producing



Easy



45 min



Slide Show

**Applicable Real Estate**

**Property Types:** All  
income-producing and  
unit-sales based

## Introduction to the Real Estate Business

In this 45-minute session, you will learn about the constituent elements of the global real estate business through an easy-to-understand framework.

Topics covered include:

- the different types of real estate properties
- the different types of real estate investors and capital providers
- the types and sources of investment capital
- transaction capital structure
- the uses of capital
- real estate investment objectives
- real estate investment methods
- the three main methods of valuing real estate properties.



Easy



1 Hour



Slide Show

**Applicable Real Estate**

**Property Types:** All  
income-producing and  
unit-sales based

## Identifying Risks and Opportunities in Commercial Real Estate

In this 1-hour session, you will learn about the real estate cycle and how it creates risks and opportunities related to acquiring, operating and developing commercial real estate in the U.S. and internationally.

Topics covered include:

- the goal of real estate investment and development
- where the primary risks lie in the US and abroad
- the biggest risks of all
- the primary ways to realize property value
- real estate cycles
- mitigating and accepting risk.



Easy



1 Hour



Slide Show

## Applicable Real Estate

**Property Types:** All income producing and unit-sales based

## Real Estate Finance 101

In this 1-hour session, you will learn the foundations of real estate finance as well as advanced techniques and topics.

Topics covered include:

- sources of capital
- types of equity and debt capital
- transaction capital structure
- debt financing, positive and negative leverage
- investment objectives
- investment methods
- valuation of properties
  - discounted cash flow (DCF) model
  - capitalization (cap) rate and comparable sales
  - replacement cost
  - residual land valuation
- operating property cash flow line item setups
- investment returns measurements
  - cap rate (yield on cost)
  - levered cash flow and net levered cash flow
  - cash-on-cash return
  - net present value (NPV)
  - multiple on equity
  - internal rate of return (IRR).



Easy



45 min



Hands-On



Slide Show

**Applicable Real Estate**

**Property Types:** All

income-producing and  
unit-sales based

## How Developers Price The Dirt:

### Residual Land Valuation and Comparable Sales

In this 45-minute session, you will learn how developers solve for what they should pay for a development site. You will learn the basics of real estate development residual land valuation for both income-producing assets and unit sales assets, as well as the principles of valuation through comparable sales (comps).

Topics covered include:

- developer control of project costs
- how land is different from other development costs
- preliminary residual land valuation by back of the envelope analysis
- secondary valuation by discounted cash flow (DCF) analysis
- comparable sales.



Easy



1 Hour



Slide Show

**Applicable Real Estate**

**Property Types:** All

income-producing and  
unit-sales based

## Demystifying the Excel Pro-Forma:

### What It Is and How You Can Begin To Master It

In this 1-hour session, you will learn how to break down the real estate pro-forma (financial projection model) into its essential components, analyze the pieces individually in easy-to-understand language, and then re-assemble them into the original whole. The relationships between the constituent parts are explained so that you will intimately understand the entire spreadsheet and its various functions.

Topics covered include:

- what financial modeling is
- the purpose of the pro-forma
- the importance of timing
- the time value of money and discounted cash flow (DCF) model
- pro-forma model worksheet types
- the "cardinal rules" of financial modeling
- best practices for when you inherit a spreadsheet model.



Easy



1 Hour



Slide Show

**Applicable Real Estate**

**Property Types:** All

income-producing and  
unit-sales based

## Real Estate Development Modeling Basics

In this 1-hour session, you will learn the fundamentals of financial modeling specifically for real estate development transactions. Participants are encouraged to ask their questions in real time to have them answered by the instructor on a rolling basis.

Topics covered include:

- what is financial modeling is
- modeling fundamentals
- what makes ground-up development different from acquisitions
- the development project timeline phases:
  - pursuit and site control
  - pre-construction and entitlement
  - construction
  - post-construction and stabilization
- uses of funds and relative size and timing of costs
- sources of funds
- pro-forma (projection model) components.



Easy



45 min



Hands-On



Slide Show

**Applicable Real Estate**

**Property Types:** All

income-producing and  
unit-sales based

## Truly Understanding Capitalization (Cap) Rates

In this 45-minute session, you will learn all about commercial real estate property capitalization (cap) rates.

Topics covered include:

- definition and calculation of a cap rate
- going-in cap rate and subsequent year cap rates
- why NOI is used as the income measurement
- what cap rates reveal about properties
- cap rate composition
- why cap rates change
- how to back-solve to a cap rate, and back-solve using a cap rate
- cap rate and valuation multiple relationship
- how to select an exit cap rate when performing a property valuation
- what to think when people quote discrepant cap rates for a deal
- where you can find cap rates for a certain geography.



Medium



45 min



Hands-On



Slide Show

Applicable Real Estate

Property Types: All income  
producing and unit sales-based

## Truly Understanding IRR (Internal Rate of Return)

In this 45-minute session, you will learn about the the nature of the IRR calculation, and why it reacts the way it does in the various acquisition and development cases that are presented in spreadsheet form.

Topics covered include:

- time value of money basics
- definition of internal rate of return
- how IRR changes over a transaction timeline from negative to positive
- cumulative nature of the IRR
- what the IRR does and does not tell us.





Easy



4 Hour



Slide Show

## Applicable Real Estate

Property Types: All income producing and unit-sales based

## Commercial Real Estate Business Fundamentals For Law Associates

In this four-hour session geared towards law associates new to real estate practice groups, you will learn about the major elements of the commercial real estate business. All business and technical terms will be defined and made open for Q&A in real time.

Topics include:

- types of commercial real estate:
  - properties
  - investors
  - sources of capital
    - equity
    - senior debt
    - junior debt
  - uses of capital
    - acquisition
    - ground-up development
    - entitlement
    - repositioning
- investment objectives and methods:
  - income (maximizing cash flow and yield)
  - recouping of investment and profit taking
- valuation of real estate:
  - discounted cash flow and time value of money model
  - net operating income (NOI), cap rates and comparable sales model
  - replacement cost
  - residual land valuation
- operating cash flow line items for income-producing properties
- profit measurement/return on investment performance indicators
- basics of joint venture partner profit sharing through waterfall structures.



Medium



16 Hour



Hands-On



Slide Show

### Applicable Real Estate

**Property Types:** All income producing and unit-sales based

## Principles of Commercial Real Estate Finance (11 Modules)

This multi-session, semester length-equivalent course provides you with a critical solid foundation in commercial real estate finance and investments. Among many other things, you will learn about discounting property cash flows, commercial real estate leases, pro-forma (projection) modeling, and how to think critically about real estate and real estate transactions. The required text is *Real Estate Finance & Investments: Risks and Opportunities*, third edition by Peter Linneman, the top graduate-level real estate finance textbook.

Participants will perform two individual case study assignments. The course segments are:

**Module 1:** Risks and opportunities; what is real estate?; global real estate

**Module 2:** Time value of money and discounted cash flow; real estate cycles

**Module 3:** Fundamentals of commercial leases

**Module 4:** Property level pro forma analysis; financial modeling; internal rate of return; amortization

**Module 5:** Due diligence; capitalization rates

**Module 6:** Development pro forma and feasibility analysis

**Module 7:** Debt financing

**Module 8:** Bankruptcy; commercial mortgage backed securities (CMBS)

**Module 9:** Ground leases; real estate exit strategies  
**Module 10:** Real estate companies; real estate private equity; real estate investor perspectives

**Module 11:** REITs and liquid real estate; corporate real estate.





Easy



1 Hour



Hands-On



Slide Show

**Applicable Real Estate**

**Property Types:** All  
income-producing and  
unit-sales based

## HP 12c Financial Calculator Skills For Real Estate Analysis

In this 1-hour session, you will learn how to leverage the most popular financial calculator for real estate analysis through hands-on exercises.

Topics covered include:

- financial registers
- simple and compound interest
- periodic and annual interest rates
- nominal and effective interest rate conversions
- how to calculate a weighted average
- present value (PV) and future value (FV)
- discounting future projected cash flows
- calculating net present value (NPV)
- calculating internal rate of return (IRR)
- calculating the loan annual percentage rate (APR)
- pricing a mortgage acquisition and calculating debt yield.



Medium



5 Hour



Hands-On

**Applicable Real Estate**

**Property Types:** All income producing and unit-sales based

## Real Estate Analysis Excel Toolkit

In this 5-hour session, you will learn the top 25+ Excel functions, tools and techniques that are most used in real estate analysis. Each topic and accompanying technique is isolated and taught with its own example, after which you will perform a topic-specific exercise. Use of keyboard shortcuts is emphasized.

Topics covered include:

- basic formula writing
- relative vs. absolute references
- dates
- advanced use of conditional statements
- financial functions
- mortgage amortization schedule
- projection formula writing
- formula auditing with trace dependents/precedents
- array lookup functions
- data tables for sensitivity analysis
- backsolving for maximum loan amount
- quality control checks
- debugging errors
- pivot tables
- goal seek
- basic macros
- circular references
- best practices

Excel techniques and functions taught include:

- formula writing
- cell anchoring using dollar signs/F4 key
- EOMONTH, EDATE
- IF, AND, OR, and combinations thereof
- COUNTIF, COUNTIFS
- SUMIF, SUMIFS
- VLOOKUP
- HLOOKUP
- ROW, ROWS
- COLUMN, COLUMNS
- INDEX, MATCH
- IFERROR, ISERROR
- RATE
- PV, FV
- NPV, XNPV
- IRR, XIRR
- PMT, PPMT, IPMT
- CUMPRINC, CUMIPMT.



Medium



3 Hour



Hands-On

### Applicable Real Estate

**Property Types:** All income producing and unit-sales based



This is the training content for Level 1 REFM Certification in Excel for Real Estate. The test is free and may be taken online at anytime.

## Excel For Real Estate (Level 1) Bootcamp

In this 3-hour session, you will learn the basics of operating in Excel, as well as advanced techniques, specifically as they relate to commercial real estate analysis. Each topic and accompanying technique is isolated and taught with its own example, after which participants will perform a topic-specific exercise. The use of keyboard shortcuts is emphasized.

Topics and functions covered include:

- spreadsheet and formula basics
- arithmetic (SUM) and rounding (ROUND, ROUNDUP, ROUNDDOWN)
- basic statistics (MAX, MIN, AVERAGE, MEDIAN)
- relative vs. absolute cell references (F4 key)
- inserting and deleting rows and columns
- creating summary tables (SUMIF, SUMIFS, COUNTIF, COUNTIFS)
- formatting values
- conditional cell formatting
- array lookup functions (VLOOKUP, HLOOKUP)
- custom formatting
- format painting
- paste special
- transpose
- dates and timelines (EOMONTH, EDATE)
- conditional statements and how to nest them (IF, AND, OR and combinations thereof)
- financial functions for compounding and discounting (RATE, PV, FV, NPV, XNPV)
- internal rate of return (IRR, XIRR)
- mortgage payment calculation (PMT, PPMT, IPMT)
- formula auditing
- data tables for sensitivity analysis
- circular references
- best practices.



Medium



3 Hour



Hands-On

### Applicable Real Estate

**Property Types:** All income producing and unit-sales based



This is the training content for Level 2 REFM Certification in Excel for Real Estate. The test is free and may be taken online at anytime.

## Real Estate Finance (Level 2) Bootcamp

In this 3-hour session, you will learn the foundations of real estate finance as well as advanced techniques and topics as applied in Excel.

Topics covered include:

- the time value of money model
- the discounted cash flow model
- internal rate of return (IRR)
- mortgage payment calculation
- refinancing/interest-only scenario payment calculation
- refinancing case study
- maximum loan amount calculation
- residual land valuation
- future net operating income calculation
- transaction capital structures
- financing development transactions
- multiple equity investors discussion
- profit sharing discussion
- preferred return, internal rate of return waterfall and promote theory basics

Excel techniques and functions taught include:

- compounding and discounting
- net present value (NPV) and XNPV
- internal rate of return (IRR) and XIRR
- conditional statements
- mortgage payment (PMT)
- principal payment (PPMT) and interest payment (IPMT)
- minimum (MIN) and maximum (MAX).



Medium



4 Hour



Hands-On

Applicable Real Estate

Property Type: Apartment

## Apartment/Multi-Family Property Operating Projection and Acquisition Screening Analysis

In this 4-hour session, you will learn the industry-standard P&L (profit and loss) statement line item set-up structure for apartment (multifamily) properties.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- projection formula modeling

Using a pre-formatted tab, a 30-line annual operating projection for an apartment building will be constructed in real-time.

The second part of the tutorial takes the NOI line and weaves it into an acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The sections of this analysis are:

- uses of funds
- sources of funds
  - sponsor equity
  - third party investor equity
  - senior acquisition loan
- unlevered projection analysis
- debt schedule
- levered cash flow
- sensitivity tables
- levered summary.



Medium



4 Hour



Hands-On



Slide Show

Applicable Real Estate

Property Types: Multi Family

## Apartment / Multi-Family Building Acquisition & Individual Unit Renovation Modeling

In this 4-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the acquisition and individual unit renovations (with continued operation) of a rental apartment building. The principles and skills taught apply equally to duplexes and 1,000-unit portfolios.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework and the powerful OFFSET function.

To facilitate your learning, you will begin with a pre-populated rent roll in Excel based on a sample property offering memorandum. You will then input variable values on a pre-formatted assumptions tab, then derive and fill in line item projection formulas on a pre-formatted monthly cash flow tab, and derive and fill in formulas on a pre-formatted annual cash flow summary report.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

Topics covered include:

- formula writing involving conditional statements
- generic projection formula writing
- integration of historical property data and existing rent roll into your pro-forma
- modeling of the unit renovation program
- modeling of any operating expense savings from the renovation/ greening of apartment units
- modeling of senior acquisition loan financing, the residual equity requirement, and a permanent take-out loan/refinancing
- property disposition
- sensitivity analysis modeling around key variables using 2-way data tables.



Medium



4 or 6 Hour



Hands-On

## Applicable Real Estate

Property Types: Multi-family,  
retail

## Mixed-Use Apartment / Multi-Family Building Development Modeling

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a mixed-use rental apartment building with ground-floor retail and income-producing parking.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, apartment unit mix, and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

The advanced capital structure you will model includes:

- sponsor
- equity partner
- third party investor
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- apartment unit and mix details
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows and returns: residential, parking, retail
- capitalized valuation for sale.



Medium



4 or 6 Hour



Hands-On

### Applicable Real Estate

**Property Types:** Condominium, single family housing

## Mixed-Use For-Sale Condominium Building / Housing Subdivision Development Modeling

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development of a residential for-sale condominium building with for-sale parking and income-producing ground-floor retail, as well as for housing subdivisions.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, apartment unit mix, and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

The advanced capital structure you will model includes:

- sponsor
- equity partner
- third party investor
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- residential/housing unit type and mix details
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows and returns: residential, parking, retail.





Medium



3 Hour



Hands-On

**Applicable Real Estate**

**Property Types:** Office,  
industrial, retail

## Multi-Tenant Commercial Property Acquisition Modeling w/ ARGUS Cash Flow Projection Customization

In this 3-hour session, you will learn the collection of technical skills for the modeling of the acquisition, operation and disposition of an existing multitenant commercial (office, industrial or retail) property. You will also learn the mathematical mechanics behind how ARGUS Valuation DCF works, and how to integrate an ARGUS cash flow projection into Excel to perform levered, equity partnership and sensitivity analyses.

Topics covered include:

- standard commercial property line item nomenclature and setup
- integration of historical property data and existing rent roll into your pro-forma
- modeling of weighted average expected values based on probability assumptions for future lease expirations or renewals
- how to quickly build a live Excel-based pro-forma valuation model that links directly to a 11-year cash flow projection from ARGUS
- modeling of acquisition loan financing, residual equity requirement, and permanent take-out loan/refinancing
- equity partnership modeling
- sensitivity analysis on key variables
- property disposition
- presentation of transaction returns indicators in an institutional investor-friendly format.



Medium



4 Hour



Hands-On

Applicable Real Estate

Property Type: Office

## Office Property Operating Projection and Acquisition Screening Analysis

In this 4-hour session, you will learn the industry-standard P&L (profit and loss) statement line item set-up structure for office properties, how to project operating cash flows, and how to screen an acquisition of a property on a levered basis.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- lease types and reimbursement dynamics
- projection formula modeling

There are three Suites in the property. The assumptions to be used are that leases for Suites 100 and 200 were put in place at the start of the trailing twelve months, and that Suite 300 is vacant currently and will remain vacant through the end of Year 1. Suite 300 rent will commence at the start of Year 2 with Year 2 Base Year.

Suite 100 is a triple-net (NNN) lease, and Suites 200 and 300 are Gross leases (Base Year stop).

Projection formula mathematical descriptions are provided to guide your Excel formula construction.

The second part of the tutorial takes the NOI line and weaves it into an acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The sections of this analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, senior acquisition Loan)
- unlevered projection analysis
- debt schedule
- levered cash flow
- sensitivity tables
- levered summary

A levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.



Medium



4 or 6 Hour



Hands-On

## Applicable Real Estate

**Property Types:** Office,  
industrial, retail

## Mixed-Use Office / Industrial Building Development Modeling

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of an office, industrial or retail property (if office, mixed-use with retail and income-producing parking).

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, and for capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

The advanced capital structure you will model includes:

- sponsor
- partner
- third party investor
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- pre-, during- and post-construction timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard & soft costs, FF&E and financing costs
- sources of funds: equity, debt
- cash flows and returns: office, industrial, retail
- capitalized valuation for sale.



Medium



2 Hour



Hands-On

#### Applicable Real Estate

Property Types: Office,  
Industrial, Retail

## Commercial Space Comparative Lease Analysis From Both Landlord & Tenant Perspectives

In this 2-hour session, you will learn the collection of technical skills for the modeling of Full Service, Gross and NNN (triple net) commercial space leases from the perspective of both the landlord and the tenant.

Topics covered include:

- formula writing involving conditional statements
- generic projection formula writing
- rent calculation using percentage-based escalations and dollar-based steps
- free rent
- parking and storage rent
- leasing commissions
- tenant improvements (TIs) and other expenditures
- operating expenses and real estate taxes
- reimbursements
- cancellation options and penalties
- net cash flow, and NPV of net cash flow
- lease Profit & Loss statement impact to tenant
- rent vs. own analysis from the tenant's perspective.



Medium



4 Hour



Hands-On

**Applicable Real Estate****Property Type: Hotel**

## Hotel Property Acquisition and Renovation Modeling

In this 4-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the acquisition and room renovation (with continued operation) and sale of a full-service hotel. The principles and skills taught apply to hotels of other levels of service.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework and the powerful OFFSET function.

To facilitate your learning, you will input variable values on a pre-formatted assumptions tab, then derive and fill in line item projection formulas on a pre-formatted monthly cash flow tab, and derive and fill in formulas on a pre-formatted annual cash flow summary report.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

Topics covered include:

- formula writing involving conditional statements
- generic projection formula writing
- integrating historical property operating data into your pro-forma
- modeling of the room renovation program
- modeling of senior acquisition loan financing, the residual equity requirement, and a permanent take-out loan/refinancing
- property disposition
- sensitivity analysis modeling around key variables using 2-way data tables.



Medium



4 or 6 Hour



Hands-On

#### Applicable Real Estate

Property Types: Hotel, retail

## Hotel Property Development Modeling

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a full-service hotel with ground-floor retail and income-producing parking.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, building size and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

The advanced capital structure you will model includes:

- sponsor
- equity partner
- third party investor
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- space programming
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows and returns: hotel, retail



Medium



4 Hour



Hands-On

Applicable Real Estate

Property Type: Retail

## Retail Property Operating Projection and Acquisition Screening Analysis

In this 4-hour session, you will learn the industry-standard P&L (profit and loss) statement line item set-up structure for retail properties, how to project operating cash flows, and how to screen an acquisition of a property on a levered basis.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- lease types and reimbursement dynamics
- projection formula modeling

There are three Suites in the property. The assumptions to be used are that leases for Suites 100 and 200 were put in place at the start of the trailing twelve months, and that Suite 300 is vacant currently and will remain vacant through the end of Year 1. Suite 300 rent will commence at the start of Year 2 with Year 2 Base Year.

Suites 100 and 300 are triple-net (NNN) leases, and Suites 200 is a Gross lease (Base Year stop).

Projection formula mathematical descriptions are provided to guide your Excel formula construction.

The second part of the tutorial takes the NOI line and weaves it into an acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The sections of this analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, senior acquisition Loan)
- unlevered projection analysis
- debt schedule
- levered cash flow
- sensitivity tables
- levered summary

A levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.



Medium



4 or 6 Hour



Hands-On

Applicable Real Estate

Property Type: Retail

## Retail Property Development Modeling

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a multi-tenant retail plaza. The principles and skills taught also apply to single tenant properties.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site and capital structure.

With transaction base case assumptions provided for you, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

The advanced capital structure you will model includes:

- sponsor
- equity partner
- third party investor
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows and returns
- capitalized valuation for sale.





Medium



4 Hour



Hands-On



Slide Show

#### Applicable Real Estate

Property Types: All income producing

## Core- and Core-Plus Private Equity Fund Modeling

In this 4-hour session, you will learn big picture real estate private equity fund basics, the general legal structure of funds based in the U.S., and how to model transaction-level, transaction partner-level, fund-level, general partner (GP) and limited partner (LP) projections for core- and core-plus real estate private equity funds.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework.

To facilitate your learning, you will begin with a pre-formatted prototypical individual transaction tab, on which you will derive and fill in line item projection formulas starting at Net Operating Income and ending at Levered Cash Flow (interest-only financing is assumed).

Next, on a pre-formatted fund-level tab, you will derive and fill in line item projection formulas starting at Investment Net Cash Flow and ending at pre-income tax partner-level Levered Cash Flows.

Last, you will derive and fill in line item projection formulas on a pre-formatted individual transaction-level partner-level promote tab.

You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working model.

Topics covered include:

- modeling net cash flow for a typical acquisition
- rolling up of multiple investments to the fund level
- projection of fund manager asset management fees
- partitioning of cash flows to the limited and general partner ownership interests based on a typical fund catch-up structure
- modeling of individual transaction partner promote structure
- fund-level claw-back.



Medium



4 Hour



Hands-On



Slide Show

## Applicable Real Estate

**Property Types:** All income producing and unit sales-based



This is the training content for Level 3 REFM Certification in Excel for Real Estate. The test is free and may be taken online at anytime.

## Single Transaction Equity Joint Venture Partnership & Waterfall Modeling (Level 3) Bootcamp

In this 4-hour session, you will learn about how to model equity joint venture partnerships for individual property transactions, both developments and acquisitions. "Dollars in" (capital contributions) and "dollars out" (partitioned levered cash flows) to all equity players will be studied in detail.

Topics covered include:

- rationale behind targeting disproportionate returns to the sponsor
- how to achieve disproportionate returns through fees and cash flow partitioning
- preferred return overview
- preferred return variations with respect to priority of payment
- preferred return in context
  - payment types A, B and C
- nature of preferred return
  - non-compounded and compounded
  - non-cumulative and cumulative
- waterfall distribution overview
- promote (carried interest) mechanism overview and modeling
- look-back internal rate of return (IRR) method
- 3-Tier waterfall modeling
- double-promote, 5-tier waterfall modeling
- alternate compounding periods: monthly, daily, quarterly
- sample partnership structures.



Medium



4 hour



Hands-On



Slide Show

**Applicable Real Estate**

**Property Types:** All income producing and unit sales-based

## Single Property Transaction Debt Financing Modeling

In this 4-hour session, you will learn all about debt financing as it relates to a single property transaction (i.e., not CMBS or RMBS structured finance).

Topics covered include:

- capital structure
- what debt financing is and why it is used
  - concepts of security and collateral
  - basic modeling example of positive leverage to equity returns
    - risks of using leverage
- acquisition loan debt financing simulation in Excel:
  - interest-only payment calculation
  - amortizing loan unctions (for both monthly and annual payment frequency):
    - total payment (PMT)
    - loan constant derivation
    - interest portion of payment (IPMT)
    - principal portion of payment (PPMT)
    - cumulative principal paid (CUMPRINC)
    - cumulative interest paid (CUMIPMT)
- amortization table creation:
  - with interest-only period integration
  - with pre-payment event integration
- acquisition loan sizing methods:
  - purchase price vs. total unleveraged uses of funds
  - loan-to-value (LTV) and loan-to-cost (LTC)
  - debt service coverage ratio (DSCR)
  - debt yield
- loan fees
- re-financing loan sizing
- mezzanine financing:
  - modeling subordination of both debt service payment and loan repayment
  - modeling participation in income post-debt service payment
- land loan modeling
- construction financing:
  - differences between acquisition and construction loans
  - loan sizing
  - funded interest (interest reserve) calculation and modeling
  - sources of repayment: income-producing assets vs. unit-sales assets
- interim (bridge) loan modeling
- construction-to-perm loan modeling
- line of credit/self-financing project modeling.



Medium



1.5 Hour



Hands-On



Slide Show

**Applicable Real Estate**

**Property Types:** All income producing

## Distressed Commercial Mortgage Note Acquisition Modeling

In this 1.5-hour session, you will learn about this less visible but potentially highly profitable way of investing in real estate, and how to properly model the acquisition of a distressed mortgage note.

Topics covered include:

- what makes a commercial mortgage note distressed in nature
- the various elements that comprise a mortgage note investment, including:
  - collateral value and note face value at original underwriting
  - current remaining loan principal
  - nominal and default interest rates
  - receiver collections
- how to model the acquisition of a mortgage note:
  - all cash or with acquisition debt
  - with and without ongoing debt service
  - with and without cash flows after foreclosure but before final sale
- how to model exit opportunities:
  - sale of note
  - partial pay down
  - sale of the underlying collateral.



## ABOUT REFM

### THE TRAINER OF CHOICE FOR COMMERCIAL REAL ESTATE EDUCATION AND MICROSOFT EXCEL-BASED FINANCIAL MODELING SKILLS

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REFM is the premier financial modeling solutions provider for Excel-based financial spreadsheet models, financial modeling training, and financial modeling consulting for real estate transactions of all types.

REFM provides its customers with the advanced financial modeling knowledge, tools and skills they need to successfully model their transactions and present them with confidence internally and to potential partners, lenders and investors. REFM's educational training is offered through digital self-study video tutorials and live group training seminars. REFM also provides private consulting services.

Based in Atlanta, REFM was founded by Bruce Kirsch in 2009. REFM has trained thousands of new and experienced real estate professionals in financial modeling from a wide variety of real estate businesses, organizations and institutions, including private equity, development, brokerage, trade groups and government.

#### Clients Include:

- Vornado Realty Trust
- The JBG Companies
- Clark Enterprises
- Skanska USA Commercial Development
- Alvarez & Marsal
- Abu Dhabi Investment Authority
- GTIS Partners
- LNR Property
- Paul Hastings
- DLA Piper
- Crescent Communities
- Prudential Real Estate Investors
- Peterson Companies
- Prometheus Realty
- Top university MBA, masters and bachelor degree programs

# TRAINERS



Bruce Kirsch

Bruce Kirsch is the founder of Real Estate Financial Modeling. Mr. Kirsch began his real estate career at CB Richard Ellis, where he marketed high-rise New York City office buildings for re-development in the top-producing Midtown Manhattan Investment Properties Institutional Group. After CBRE, Kirsch worked for a developer of urban infill design-forward residential lofts. Kirsch then engaged in his own urban and suburban condominium and single family detached housing ventures. Kirsch was then selected as one of the two executives to run New York City-based developer The Clarett Group's Washington, DC business.

Mr. Kirsch holds an MBA in Real Estate from The Wharton School. Mr. Kirsch is also the Editor of the leading real estate finance textbook, *Real Estate Finance and Investments: Risks and Opportunities* by The Wharton School's Professor Emeritus Dr. Peter Linneman. Mr. Kirsch graduated with a BA in Communication from Stanford University.



Bulkeley Banks

Bulkeley Banks joined REFM in 2010 upon receiving his Masters in Professional Studies in Real Estate from Georgetown University, where he served as the Finance Co-Chair on the Student Advisory Board in Real Estate.

At REFM, Mr. Banks develops and improves financial models, spearheads consulting client engagements, and serves as a training instructor. While with REFM, Mr. Banks has led the technical development of REFM's Excel Model Templates, and has served as lead on major financial modeling assignments for both Skanska and Washington, DC's Southwest Waterfront Project ("The Wharf"). In addition to his work with clients, Mr. Banks is adjunct faculty at the NYU Schack Institute of Real Estate, and he has lectured on topics in real estate finance at Cornell, Wharton, Columbia and Georgetown, among other universities. Prior to joining the company, Mr. Banks worked at the University of Chicago's Evolution and Ecology Lab analyzing genetic variation in botany. Mr. Banks holds a BA in Philosophy from the University of Chicago, where he was awarded the Herman S. Dunlap Scholarship and was a four year varsity swimmer and letterman.



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