



MGMT E-2037: Real Estate Finance and Investment Fundamentals

Instructor: Teo Nicolais, Owner
Nicolais, LLC

Class Meeting Time: Wednesdays from 7:40pm to 9:40pm US Eastern

Class Format: Live Online Lectures (recordings posted immediately to course website)

Course Website: <https://canvas.harvard.edu/courses/8415>

Course Description and Overview

A follow-up to *MGMT E-2035: Principles of Real Estate*, this course is geared toward individuals seeking to become active real estate investors or to join a real estate investment company **as well as** those interested in seeing the real-world application of corporate and project finance techniques.



Above all, **this is a class about investment strategy and decision-making** through the lens of the largest and most ubiquitous asset class in the world, Real Estate.

You gain a fundamental, real-world understanding of returns on capital: what they tell us about expected growth, market and project-specific risks, and the landscape of investment alternatives. You develop practical, hands-on experience building financial Pro Forms in Microsoft Excel including multi-year discounted cash flow analysis. You learn how to capture critical tax implications for real estate investment in your Pro Forms such as depreciation, capital gains, and passive losses in order to calculate After Tax Cash Flows for real estate investments.

Since most projects and entrepreneurial ventures (Real Estate and otherwise) require investor capital, you study various strategies for structuring investor equity participation. You learn specific mechanisms for allocating cash flows between partners in order to attract equity investors. You also learn how to safeguard both you and your investor in the event that a project doesn't go as planned.

Like all investments, real estate investments involve uncertainty. You acquire the skills necessary for testing your financial model against multiple scenarios (optimistic, pessimistic, etc.) to measure the impact on your returns.

You also learn a rigorous, **rational** approach for ensuring you are maximizing your returns on your existing investments. Specifically, you'll learn how to evaluate, on an on-going basis, whether to hold, sell, refinance, or renovate an existing property (an analysis which, by the way, is woefully neglected by the vast majority of property owners and can lead to great value-creating opportunities for you).

You learn to focus on the areas which generate the greatest value creation, develop specific investment goals and property acquisition criteria, and then articulate those to investors and lenders to raise capital.

Finally, you study recent trends in global real estate capital markets. You learn how Real Estate Investment Trusts (REITs) are creating new investment opportunities. You learn the current trends and dynamics of non-US real estate markets. Moreover, you study the rationales, obstacles, opportunities, and risks for investing outside of your home country and develop strategies for gathering local market intelligence.





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Course Format (Summary):

This course is designed to be taken 100% online.

In fact, students have taken this course on every continent except Antarctica.

Here's how it works...

Each week features a **live, two-hour, fully interactive online lecture** using Adobe Connect.



No special equipment is required to participate in lectures. While a web-cam and microphone will be necessary for completing the online exams it's common for students to communicate in lecture via the live online chatroom (and that is perfectly fine with us).

Attendance is *not* mandatory. While you're encouraged to tune into lectures live, **you can always access the video recordings of lectures** which are posted to the Canvas Site immediately after the lecture.



All assignments and exams are submitted online through the course Canvas Site. Taking exams couldn't be easier: you'll have a 24-hour window during which you can start your exam which means **you can take your exams at the time most convenient for you.** More details on that can be found below.

Far from a traditional "course website," **Canvas** is a state of the art learning management system. We also utilize "Discussions" on Canvas to answer questions about Course Material as well as questions on Course Logistics.

A teaching assistant holds weekly section meetings using Adobe Connect to discuss the material in greater detail and offer office hours. For those of you who are new to the program, a "section" is like a mini-class that allows you to engage the material in a more intimate setting.

Again, if you are unable to attend lecture or section meetings, worry not - all lectures and sections are recorded and published to the course website for later viewing.

Weekly Assignments and Exams

There are a total of nine weekly assignments ("Problem Sets"). As noted above, all weekly assignments and exams for the course will be completed online and submitted through the Canvas site.

Weekly assignments are designed to have a high degree of instructional value: completing the assignments will help you work through the material and discover insights on your own. The time you are expected to spend on weekly assignment will vary but is typically between one and two hours.



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Weekly Assignments and Exams (Continued)

All assignments will be submitted online and are due at 7:00pm US Eastern on the due date. We cannot accept late problem sets for any reason. To compensate for this policy, we drop your two lowest of problem set scores from your semester grade calculation.

Assignments are graded and returned within one week of the submission deadline and **students have one week after the grades are posted to appeal grades for that assignment.**

There will be two exams: the midterm and the final exam. The midterm exam will cover Lectures #1 - #5. The final exam will cover Lectures #6 – #11. Both exams will be two hours in duration and carry equal weight. They will be open book and are administered online.

Important: You will have a 24-hour window during which you can take your exam.

The examination window starts at 7:40pm US Eastern on the exam date and ends the following day at 7:40pm. You can take your exam at any point during that examination window. Collaboration on exams is not permitted.

Should you run into any technical problems or be unable to take your exam for any reason, you must file an appeal with the Academic Services office immediately (appeals@dcemail.harvard.edu). **All decisions regarding appeals are outside of the control of the teaching staff.**

Readings

Our goal is to equip you with the tools you need to explore the exciting world of Real Estate both during this class and beyond. Toward that end, we've narrowed down the readings in this course to three exceptional (**but entirely optional**) textbooks which we think you will find to be valuable additions to your personal library. In order of importance for your success in the class, they are:

1. Geltner, David M., Miller, Norman G., Clayton, Jim, Eichholtz, Piet. Commercial Real Estate Analysis and Investment, Third Edition (OnCourse Learning, 2014)
ISBN-13: 978-1133108825
2. Brueggeman, William B., Fisher, Jeffrey D. Real Estate Finance & Investments, 15th Edition (McGraw-Hill, 2015)
ISBN-13: 978-0073377353
3. Poorvu, William J. The Real Estate Game: The Intelligent Guide To Decision-Making And Investment (The Free Press, 1999)
4. ISBN-13: 978-0684855509

While we recommend the most recent editions of the texts, in light of the cost of textbooks we understand that some **students may choose to purchase previous editions of the textbooks. This is totally ok with us.**



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Readings (Continued)

For your convenience, we will be posting a “Table of Contents” of the specific section headings from the “official” edition to serve as waypoints for students trying to find the same topics in previous editions of the texts (as we know, sometimes very little changes between editions except the page numbers).

Again, the textbooks are not required. You can be successful in this course without the textbooks...but given the amount of time and money you've already invested, we recommend you pick them up (even if you go with older editions).

Grading

Your semester score will be automatically calculated using the weighting system below and you will be awarded the higher of the two scores:

| | | | |
|----------------|-----|---------------------|------------|
| Problem Sets: | 25% | Assignments: | 25% |
| First Exam: | 25% | | |
| Second Exam: | 25% | Second Exam: | 50% |
| Final Project: | 25% | Final Project: | 25% |

When calculating your semester grade, we will drop your two lowest Problem Set scores. Letter grades will then be assigned according to the following fixed scale:

| Letter Grade | Percentage of Semester Points |
|--------------|-------------------------------|
| A | 93% |
| A- | 90% |
| B+ | 87% |
| B | 83% |
| B- | 80% |

| Letter Grade | Percentage of Semester Points |
|--------------|-------------------------------|
| C+ | 77% |
| C | 73% |
| C- | 70% |
| D | 65% |
| E/F | 0% |

The percentages above represent the lower bound of the letter grade range. For example, a student who earned an 86.9% would receive a B for the course. A student receiving exactly 87% of semester points would receive a B+ for the course.

Other Logistics

Prerequisites:

High school algebra. No prior real estate or finance background is required for this course. **Having already taken MGMT E-2035: Principles of Real Estate will enrich your experience but is *not required*.**

Technology:

Having Microsoft Excel (versions 2013, 2010, or 2007) is recommended. Google Spreadsheets are an acceptable alternative. **Previous knowledge of Excel is helpful but not required.** Scientific calculator (one capable of handling exponents) would be helpful. Financial calculators are **not required**.



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Other Logistics (Continued)

Communication Outside of Class:

Students are welcome and encouraged to ask questions of the teaching staff outside of class. Our experience has been that **Canvas Discussions** or our **Live Class Sessions** with the benefit of video, audio, and whiteboards (all of which are recorded and posted the Canvas site for later review) are incomparably more effective and efficient in answering student questions than e-mail.

We encourage you to send us questions by posting to a **Canvas Discussion** and we will be glad to answer those questions on the discussion thread or *during the next section class.*

E-mails for which neither class nor the Canvas Discussion are best suited (i.e. questions about your grade or circumstances specific to you) will answered within one business day during regular business hours (excluding weekends, evenings, and holidays).

Word of advice: keep a careful eye on the course calendar in the syllabus. Do not wait until the night before the weekly assignments are due start on them – if you want assistance from the teaching staff be sure to e-mail us **before the scheduled meetings** so we can answer your questions during the recorded sessions.

Graduate Credit:

Students who are enrolled for graduate credit must complete an additional written assignment during the Advanced Real Estate Investment Simulation analyzing the projects and articulating their investment decisions (see below for more information).

Final Project: Advanced Real Estate Investment Simulation

One of the primary objectives of this course is for you to gain practical **decision-making experience** by working through investment situations. The final project will expose you to as many projects (and perspectives) as possible to give you a head start on future real estate and non-real estate investment decisions.

As with the rest of this course, the final project is designed to be completed 100% online.

You will be forming teams of between **FIVE TO SIX** students to seek out, analyze, structure, and present an **actual, real life investment opportunity of your group's choice** to the rest of the class with the goal of attracting lenders and entrepreneurial partners.

Presentations should include an executive summary, market analysis, discounted cash flow analysis, and a discussion of how you plan to create additional value based on the principles learned in this class. **Brevity and concision are key.**

All observing students play the role of either a lender, an equity investor, or an entrepreneurial partner.



This Investment Simulation Received the
2015 ABLConnect
Teaching Innovator Prize

For more information, see:
<http://ablconnect.harvard.edu/prize-winning-activities>



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Final Project: Advanced Real Estate Investment Simulation (Continued)

As an audience member, you will be assigned one of those roles and a quantity of capital to invest in one or more of the projects proposed (excluding your own). You will be investing your capital based on your assessment of the returns as well as your judgment of the soundness of the plan.

Members of the team that attracted the most capital from lenders, equity investors, and entrepreneurial partners during the second round will receive a 5% bonus on their semester scores, members of the second place team will earn a 2.5% bonus on their semester scores.

A more detailed explanation and timeline will be distributed well in advance in class.

Finally, many students from past courses have cited this as the best part of the course. We hope you'll learn a ton by doing this and that you'll have fun along the way!



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Course Schedule

Lecture 0: Getting Started



Note: Lecture 0 is a self-paced exploration of the various tools we use in this course to deliver a great online experience for you. All of the information you need for this module can be found on the Course Canvas Site.

The first Problem Set addresses the material from Lecture 0.

Wed. Jan 27th, 2016 - Lecture #1: An Introduction to Real Estate Investment

- Why Invest in Real Estate?
- Ways to Invest in Real Estate (Overview)
 - Direct Investment: Purchasing and Operating Properties
 - Indirect Investment:
 - Syndications, Multi-property Funds, Real Estate Investment Trusts
- What Distinguishes Real Estate Investment from Other Types of Investments?
- Understanding the “Real Estate Game” (the “William Poorvu Framework”)
- Macro-level Investment Decisions: What Investment **Strategies** are Right for You?
- Micro-level Investment Decisions: How Do You Know if a Deal is Right for You?
 - Identifying Your Goals and Values
 - Understanding Your Risk Tolerance
 - Evaluating Your Resources: Time, Capital, and Experience
- The Centrality of Cash Flow in Real Estate Investment

Readings: Brueggeman & Fisher (p. 346 – 349), Geltner & Miller (p.668 – 672) Poorvu (p. 1 – 12, p. 44 – 57)

Wed. Feb 3rd, 2016 - Lecture #2: What is an “Appropriate” Investment Return?

- Using Periodic Returns to Analyze Investments
- What Do Periodic Returns Reveal About a Real Estate Investment?
 - Insight #1: Expectations on Current Yield v. Asset Appreciation
 - Insight #2: Opportunity Cost of Capital
 - Insight #3: Measuring the Risk Premium
- What Types of Risk Should be Factored into an Investment’s Return?
- Conceptual Frameworks for Quantifying Risk
- Using Multi-Period Returns to Analyze Investments
 - What Does the Internal Rate of Return Really Tell Us About an Investment?
- Introduction to Discounted Cash Flow Analysis

Readings: Brueggeman & Fisher (p. 429 – 432), Geltner & Miller (p. 177 – 194, p. 203 – 211)

Problem Set #1 Due at 7:00pm US Eastern





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Course Schedule (Continued)



Wed. Feb 10th, 2016 - Lecture #3: Discounted Cash Flow Analysis

- How Does a Discounted Cash Flow Analysis Work?
 - What is the Unexpected Relationship Between Asset Prices, Cash Flows, and Yield?
 - How Are Real Estate Assets Priced Using Capitalization Rates?
 - Net Present Value Analysis
 - Truths and Myths About Discount Rates
 - What is the Net Present Value Decision Rule?
 - Common Mistakes and Pitfalls in the Application of Discounted Cash Flow Analysis
 - How Can You Test (and Strengthen) Your Rate of Return Estimates?
- ***In Class Exercise:*** How Do You Build a Discounted Cash Flow Pro Forma in Excel?
 - ***Readings:*** Brueggeman & Fisher (p. 366 Concept Box), Geltner & Miller (p. 202 – 220, p. 230 - 252), Poorvu (p. 13 – 43)
 - ***Problem Set #2 Due at 7:00pm US Eastern***

Wed. Feb 17th, 2016 - Lecture #4: How Does Debt Financing Work?

- How does Financial Leverage Work?
 - Increases in Both Risk and Reward
- What is a Constant Payment Mortgage and How Does it Work?
- Underwriting the Borrower: What Do Banks Need to Know About You?
- Underwriting the Property: How Do You Size a Loan?
- What is Debt Service?
 - The Importance of Amortization for Loan Payments
- Debt Assets v. Equity Assets: More Similar Than You Think?
 - Insights into the Lender's Perspective
- ***In Class Exercise:*** How Do You Incorporate Debt Financing in Your Excel Pro Forma?
- ***Readings:*** Brueggeman & Fisher (p. 393 – 394, 402 – 406) Geltner & Miller (p. 286 – 291, 389 – 392)
- ***Problem Set #3 Due at 7:00pm US Eastern***

Wed. Feb 24th, 2016 - Lecture #5: How Are Real Estate Investments Taxed?

- What is Depreciation and How Does it Work?
 - Buildings and Improvements
 - Capital Expenditures
 - Refinancing Expenses
- Ordinary Income Tax
- Understanding Taxes Due at Sale
 - Capital Gains Tax
 - Depreciation Recapture Tax
- The Key Differences Between *Net Income* and *After-Tax Cash Flow*
- How Do You Calculate Your Effective Tax Rate?
- The Tax Impact of Debt Financing
- ***In Class Exercise:*** How Do Calculate After-Tax Cash Flows and Returns in Excel?
- ***Readings:*** Brueggeman & Fisher (p. 366 – 373), Geltner & Miller (p. 308 – 322)
- ***Problem Set #4 Due at 7:00pm US Eastern***





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Course Schedule (Continued)

Wed. Mar 2nd, 2016 - Lecture #6: Raising Investor Capital (Part 1)

- How Does Financial Leverage Work? (Revisited)
- How Do Roles in a Partnership Differ?
 - Entrepreneur v. Money Partner
- Key Questions for Forming a Partnership
 - What is the Investment Period?
 - Can the Entrepreneur Take on Additional Debt or Investors?
 - How is the Entrepreneur Compensated?
 -and more.
- Mechanisms for Allocating Cash Flows Between Partners
- Example Investor Equity Structures
 - “Pesier-Hamilton” Model
 - “Geltner-Miller” Model
- Readings: Brueggeman & Fisher (p. 583 - 602), Geltner & Miller (p. 352 – 361), Poorvu (p. 98 – 101, 108 – 116, 223 – 224)
- **Problem Set #5 Due at 7:00pm US Eastern**



Wed. Mar 9th, 2016 – Midterm Exam

- Exam Duration: Two Hours
- Exam Window:
 - Starts at 7:40pm US Eastern on Wednesday, March 9th
 - Ends at 7:40pm US Eastern on Thursday, March 10th

Wed. Mar 16th, 2016 – Spring Break: No Classes

Wed. Mar 23rd, 2016 - Lecture #7: Raising Investor Capital (Part 2)

- Example Investor Equity Structures (Continued)
 - Implementing the Pesier-Hamilton Model
 - Implementing the Geltner-Miller Model
- Advice on Partnerships from the Real World
- **In Class Exercise:** *How Do You Incorporate Investor Equity in Your Excel Pro Forma?*



Wed. Mar 30th, 2016 - Lecture #8: What If....?

- What If Your Assumptions Change?
 - Building a Sensitivity Analysis into Your Excel Pro Forma
 - Measuring the Risk Premium-to-Risk Premium Ratio
- Where are Your Returns *Actually* Coming From?
 - Partitioning your IRR
- **In Class Exercise:**
Creating a Sensitivity Analysis and IRR Partition in Excel
- Readings: Brueggeman & Fisher (p. 432 - 437), Geltner & Miller (p. 221 – 224, 361 – 368)
- **Problem Set #6 Due at 7:00pm US Eastern**



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Course Schedule (Continued)

Wed. Apr 6th, 2016 - Lecture #9: Maximizing Your Return

- Maximizing Your Return
 - The Equity Build-Up Paradox
 - Measuring Your Periodic IRR
- Decision Rules for Selling a Property
- Readings: Brueggeman & Fisher (p. 458 - 466), Geltner & Miller (p. 419 – 425), Bonus Readings: (*Advanced Perspective on Refinance Decision*)
- **Problem Set #7 Due at 7:00pm US Eastern**

Wed. Apr 13th, 2016 - Lecture #10: Maximizing Your Return (Continued)

- Refinancing (as an Alternative to Selling)
- Decision Rule for Renovating a Property
- What is the Difference Between Market Value v. Investment Value?
- Readings: Brueggeman & Fisher (p. 466 – 471, 484 - 487)
- **Problem Set #8 Due at 7:00pm US Eastern**



Wed. Apr 20th, 2016 - Lecture #11: Global Capital Markets and International Investing

- Investing to Your Advantage: Create Value on a Property-level?
 - Property selection (picking “good” properties)
 - Acquisition transaction execution (skillful negotiations and due diligence)
 - Operational management during holding period
 - Disposition / End of Holding period transaction execution
- How can you best create value on a *portfolio-level*?
 - Capital allocation
 - Market selection
- Pooled and Commingled Funds, Opportunity Funds
- Real Estate Investment Trusts (REITs)
- Global real estate capital market size and flows
- Investing outside of your home country
 - Rationales and Obstacles
 - Opportunities
 - Risks
- Strategies for gathering local market intelligence
- Readings: Brueggeman & Fisher (p. 690 – 706, 744 – 748, 772 - 777), Geltner & Miller (p. 573 – 601, 605 – 632, 666 - 673), Poorva (p. 119 - 144)
- **Problem Set #9 Due at 7:00pm US Eastern**





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Course Schedule (Continued)

Wed. Apr 27, 2016 - Lecture #12: Final project presentation (Round I)

- Teams will present to an assigned group of teams.
- At the end of the session each student will allocate their capital to one or more of the proposed projects via the Canvas Site.
- **Graduate level students will be required to write a short response paper explaining their investment decisions.**

Advanced
Real Estate
Investment
Simulation

Wed. May 4th, 2016 - Lecture #13: Final project presentation (Round II)

- The teams which raised the most capital in Round I will present to the entire class.
- At the end of the session each student will allocating their capital to one or more of the proposed projects via the Canvas Site.

Wed. May 11, 2016 – Final Exam

- Exam Duration: Two Hours
- Exam Window:
 - Starts at 7:40pm US Eastern on Wednesday, May 11th
 - Ends at 7:40pm US Eastern on Thursday, May 12th



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About the Instructor

Teo Nicolais is a real estate entrepreneur who loves to teach.

Nicolais lived and breathed real estate as the Director of Finance and Acquisitions for a \$500 million real estate investment company in Illinois which specializes in apartment communities and single-family home developments. In addition to developing cash flow forecasts and performing financial due diligence, Nicolais personally identified and negotiated the purchase of new investments and arranged project financing using equity, taxable and tax-exempt bonds, institutional debt, and conventional bank loans.

Nicolais currently lives in Denver where he owns a real estate investment company, Nicolais, LLC. With the help of his employees, Nicolais invests in multifamily rental properties in the Denver metro area and is active in the city's "fix-and-flip" market. Nicolais is the Vice President of the Apartment Association of Metro Denver (AAMD), a former Chair of the AAMD's Independent Rental Owner's Council, a member of the Urban Land Institute, President of the Kiwanis Club of Alameda West, and served as a Director of the US Fund for UNICEF.

Throughout his professional life, Nicolais has always made time to teach. Nicolais recently taught his 50th course at the Harvard Extension School alongside Professor Bruce Watson with a cumulative enrollment of over 8,000 students.

His students recently honored him with an overall rating of 4.96 out of 5.00 in their course evaluations of Principles of Real Estate and he received the 2015 ABLConnect Teaching Innovator Prize (also for his work in Principles of Real Estate). Nicolais was awarded him the "Harvard Extension Student Association's Student Choice Award" in 2012 and 2013. He was also the recipient of the Harvard Extension School's First Annual Dean Michael Shinagel Award in 2014.

He earned his bachelor's degree from Harvard College with a concentration in economics. As part of his undergraduate academic work, he studied advanced real estate finance at the Harvard Graduate School of Design and leadership at the Harvard Business School.

Academic Integrity

All work submitted for credit at Harvard is expected to be the student's own. Please take the time to familiarize yourself with the Harvard's policies on academic integrity, which can be found at <http://www.extension.harvard.edu/exams-grades-policies/student-responsibilities>.

Other resources include, The Harvard Guide to Using Sources (<http://usingsources.fas.harvard.edu/icb/icb.do>).

Please visit and use this site to avoid any unintentional errors. It is important to understand the standards to which you will be held; ignorance of the standards will not be considered an excuse for violating them.

Professional Conduct

Professional behavior is expected throughout the class. This means respectful communication. During discussions, negotiations, and debriefs, civil discourse should be maintained at all times and comments should be aimed at moving the discussion forward. This does not mean that students must always agree with others since reasoned, respectful dissent may be part of the discovery process and lead to previously unconsidered options. Opportunities to provide feedback to classmates will be provided in class in our debriefing sessions.