

The Wharton School of the University of Pennsylvania

Real Estate Finance and Investments
REAL 721: MBA for Executives

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Course Objectives:

There are two primary goals of this class:

- 1) To expose you to the terms, issues, and topics in commercial real estate;
- 2) To give you the basic skills and intuition you need to begin to evaluate a variety of real estate investments.

This class tries to strike a balance between covering a breadth of topics and providing a thorough treatment of the topics we do cover in the limited time we have. *The presumption in this class is that you have no prior real estate experience, and no pre-existing knowledge of the real estate industry is necessary to do well in this class.*

Course Overview:

The class material breaks down into three major sections:

- 1) The risk and return of property-level real estate investments. The goal is to be able to interpret, understand, and evaluate a real estate property investment *pro forma*. To that end, we will spend some time covering the structure and vocabulary used in these *pro formas* then using them as a tool for analyzing real estate investments.
- 2) The economics of commercial real estate markets: Understanding the forces that will determine the value and income-producing potential of a real estate investment.
- 3) Topics in real estate. This section is reserved for important real estate issues of the day. This year, we will cover Commercial Mortgage Backed Securities and Real Estate Investment Trusts.

Course Materials:

Textbook: *Commercial Real Estate: Analysis and Investments*, by Geltner, Miller, Clayton, and Eichholtz, is required. The class uses edition 3e, and the syllabus will refer to that version. *Real Estate Finance and Investments* by Linneman (any version) does a good job with the material in the first half of the class and is listed as an alternative to

the Geltner and Miller text. We will make chapters from Linneman available on Study.net to the extent agreed to by the publisher. The full book is available for purchase at linnemanassociates.com.

Class notes: Copies of the PowerPoint slides used in class will be posted in PDF format on Canvas in advance of class time. Even if the slides are posted well in advance, we often update and modify them a day or two before class, so you should plan to download the most current version shortly before class.

Readings: Available at Study.net. Not all the readings in the Study.net pack are required. The syllabus tells you which readings are required and which are optional.

Class Preparation:

Videos: We will adopt a number of approaches to mix things up in our three-hour class sessions. One strategy will be for you to watch some material asynchronously. We will not repeat the material from the videos during lecture, and the synchronous portions of class will assume you have watched the videos. You will have time to watch the videos during class if you cannot watch them in advance – we will pause class at appropriate times, and students who have already watched the videos can take a break and everyone else can watch the video.

Required readings: These readings are listed on the syllabus with an asterisk (*) and are in bold print. They are drawn from the textbook and the Study.net readings. You should read them in advance of the class in which they are listed.

Optional readings: For interested students, the syllabus lists recommended (but optional) readings. These readings either expand upon or reinforce the topics we cover in class.

Practice problems: A set of practice problems and detailed solutions will be available on Canvas. Doing these problems is a fundamental part of the class. Please do the practice problems after the topic set in which they are covered. (For example, do Practice Problems set #2 after we cover Topic #2.) We will neither ask you to hand in the problem sets nor grade them. This is not an indication that we consider them unimportant.

Old exams: Some sample exam questions (and solutions) will be available on Canvas.

Cases and exercises:

Workload: There will be two group projects (one pro forma exercise and one case).

Distribution: The exercise and case will be made available on Canvas.

Teams: You will choose your own case team of three to four members. It is your responsibility to find a team. You and your teammates should sign up under the “team sign-up” section on Canvas.

Independent work: You may discuss the exercise and the case with other groups and give and receive assistance. However, each group must separately prepare their own exercise and case materials and write-ups.

Due dates: The due dates will be listed on the assignments, on Canvas, and in the syllabus. **Late assignments will not be accepted nor will extensions be given.**

Grading:

Weights: The course grade will be based on the following:

- Exam: 30 percent
- Exercise: 30 percent
- Case: 40 percent

Exam: The exam will be administered online during the week after the last class. You will have flexibility in when you take it. The format still is to be determined, but it most likely will be administered on Canvas. You must pass the exam to pass the class – it is the only individual grade we have for you. We will strive to be as transparent as possible in advance about what a “passing exam performance” entails. The exam will be open-book, open-notes, and you may use a calculator and/or Excel (starting with a blank workbook).

Curve: Each individual assignment is curved and the variance is standardized so no one assignment contributes more variance to your final grade than another. The curved scores are totaled for each student and the total is curved again. In practice, this means that your grade is determined by how many standard deviations your assignment scores are above or below your section's mean and whether you have correlated over- or underperformance across assignments.

Regrades: Our policy on regrades is appended to the syllabus.

Classroom Expectations:

Be on time: We will start on time and end on time. Even virtually, do not arrive late.

Zoom protocols: Please use chat to communicate with us while we are talking. If you ask a brief question in chat, we can call on you to follow up or incorporate an answer to your question into our lecture. It's better than raising your hand because it tells us what you want to talk about.

Be prepared: Completed the *required* readings in advance of the lecture and be ready to comment on or discuss the class material. Watch the videos in advance, if you can.

Participation: Be willing to participate in class discussions, and to speak up if you're bewildered.

Getting help:

Canvas: We rely on Canvas to communicate with you and provide class materials:

- Copies of the PowerPoint slides used in class (in PDF format)
- Sample Excel spreadsheets from the in-class examples
- Practice problems and solutions
- Supplemental class material, such as newspaper articles
- Announcements, updates, and clarifications
- Discussion threads for Q+A (e.g., about the case)

Email: Do not think that a question is too “basic” to ask us. We are happy to help students understand any material they are having difficulty with. All we ask is that you take a serious stab at it yourself before turning to us.

Office hours: It is best to email one of us and we'll schedule an appointment, even just to chat.

We're happy to do so; it's easy by Zoom.

Disclaimers:

Schedule: The class schedule is an ambitious goal and may not reflect the actual timing, or even sequence, of covering material.

Course Schedule

Class 1 (Friday, August 28, 9:00 a.m. – 12:00 p.m.)	Topic #1: Overview of real estate markets Topic #2: Pro-forma valuation mechanics and cap rates - NPV - Cap rates - Leverage - Taxes	<u>Required</u> Geltner & Miller, Chapter 1.2.3-1.2.4: “Pricing of Real Estate Assets,” pp.17-21 Geltner & Miller, Chapter 11: “Nuts and Bolts for Real Estate Valuation: Cash Flow Proformas and Discount Rates,” pp.229-252. Geltner & Miller, Chapter 14.1-14.3.2: “After-tax Investment Analysis and Corporate Real Estate,” pp.308-322 Geltner & Miller, Chapter 18.2: “Commercial Mortgage Underwriting,” pp.442-451 OR: *Linneman [chapter 5, pp. 55-83] “Property Level Pro Forma Analysis” *Linneman [chapter 6] “Financial Modeling” *Linneman [chapter 9] “The Use and Selection of Cap Rates” *Linneman [chapter 15] “The Use of Debt and Mortgages” *Linneman [chapter 18] “Real Estate Exit Strategies.” <u>Optional/Background</u> Geltner & Miller, Chapter 8: “Present Value Mathematics for Real Estate”, pp.155-172. Geltner & Miller, Chapter 9: “Measuring Investment Performance,” pp.177-194 Geltner & Miller, Chapter 13: “Use of Debt in Real Estate Investment: The Effect of Leverage,” pp.286-304 Berk and DeMarzo, <i>Corporate Finance</i>, chapter 3.3 and chapter 4: “The Time Value of Money.”
Class 2 (Friday, Sept. 11, 9:00 p.m.– 12:00 p.m.)	Topic #2: Pro-forma valuation, continued. Topic #3: Sources of real estate risk Graded exercise handed out.	<u>Required</u> BP #1: <i>Emerging Trends in Real Estate 2020</i>, chapters 1 and 3. BP #2: <i>Nine Abuses Common in Pro Forma Cash Flow Projections</i> Geltner & Miller, Chapter 28: “Investment Analysis of Real Estate Development Projects,” pp.732-753. <u>Optional/Background</u> Geltner & Miller, Chapter 16: “Mortgage Basics I,” pp.377-399

Class 3 (Saturday, Sept. 12, 9:00 a.m. – 12:00 p.m.)	Topic #4: Real estate markets and cycles Topic #5: Real estate price growth and superstar cities	<u>Required</u> BP #3: <i>Adjustment Mechanisms in Real Estate Markets</i> Geltner & Miller, Chapter 6.1: “Real Estate Market Analysis,” pp.101-114. <u>Optional/Background</u> Geltner & Miller, Chapter 2: “Real Estate System,” pp.24-37. Geltner & Miller, Chapter 7.3: “Perspective on the U.S. Institutional Property Market,” pp.143-151. BP #8: <i>Superstar Cities</i>
Class 4 (Saturday, Oct. 3, 9:00 a.m. – 12:00 p.m.)	Graded exercise discussion Topic #6: Housing markets Case made available	Graded exercise due on Canvas by October 1.
Class 5 (Friday, Oct. 16, 9:00 a.m. – 12:00 p.m.)	Case discussion Topic #7: Securitization of Debt Interests: Commercial Mortgage-Backed Securities (CMBS)	<u>Case due October 14.</u> <u>Required</u> Geltner & Miller, Chapter 17: “Mortgage Basics II,” pp.402-424 Geltner & Miller, Chapter 19.1: “Commercial Mortgage Economics and Investment: Some Basic Characteristics of Bonds,” pp. 454-466 Geltner & Miller, Chapter 20: “Commercial Mortgage-Backed Securities,” pp.481-506 BP #4: <i>Differences Across Originators in CMBS Loan Underwriting (1-8, 14-16)</i> BP #5: <i>Philadelphia Fed Banking Trends: The Growing Role of CRE Lending</i> <u>Optional/Background</u> BP #9: CMBS Past, Present, and Future
Class 6 (Saturday, Oct. 17, 1:00 p.m. – 4:00 p.m.)	Topic #8: REITs	<u>Required</u> Geltner & Miller, Chapter 23: “Real Estate Investment Trusts (REITs),” pp.573-598 BP #6: <i>Basic Valuation of a Real Estate Investment Trust</i> BP #7: <i>Richmond Fed Economic Brief: Assessing the Risk of Mortgage REITs</i> <u>Optional/Background</u> BP #10: <i>A Primer on US Equity REITS and their Role in an Institutional Investment Portfolio</i>

Week following class	Exam	
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Regrade Policy

We strive for accuracy and equity in the grading for this class. However, despite our best efforts, grading is sometimes imperfect. The following set of rules provides a mechanism for requesting regrades to correct grading errors. If you do not follow these rules, you will forfeit your right to a regrade. The rules are designed to maintain fairness by not rewarding gratuitous regrade requests while also not penalizing students for bringing errors to our attention.

The onus for bringing any errors to our attention falls upon you. Pick up your assignments promptly so you can check the grading and make sure that your grade on Canvas matches the grade on your assignment.

1) If we made an error in adding up your points to obtain your total score, all you need to do is *type* up a short explanation describing the points we failed to add, attach it to your assignment, and forward it to us. (A PDF scan is okay.)

2) Our intent is that you only lose points *once* for a mistake. Sometimes, an error in one part of an assignment creates incorrect answers in another part of the assignment. In that case, we look for internal consistency. If your answer would have been correct had you not made your earlier mistake, we will note the mistake but not deduct further points for it. Similarly, if in a case you repeat the same calculation in a number of circumstances, we will deduct points only once for a calculation error but we will try to note it every time.

If you believe that we inadvertently deducted points multiple times for the same error, please *type* up a *detailed* explanation and submit it along with the assignment to us. Be sure to take the time to make sure you understand the errors you made before submitting the regrade request. Also, if an error is circled but no point deduction is noted, we did not take off points for it.

3) To aid your understanding of the material and of the grading philosophy, we typically provide an explanation of how the points were allocated. If you believe your grading was not consistent with the stated guidelines, please *type* up a *detailed* explanation and submit it along with the assignment to us. Be sure to take the time to make sure you understand the errors you made before submitting the regrade request. If not, you run the risk that you actually did worse than you thought and we were too generous with the points given. In addition, under no circumstances will we consider regrade requests that allege that the grading guidelines are unfair. The guidelines are applied equally to everyone, thus are equitable. Rather, the regrade request is intended to correct errors in adhering to the rubric.

4) If you merely would like an explanation of the grading on an assignment, submit your assignment with a typed cover letter letting us know what you would like us to explain. We will set up a time to meet and we will explain it to you. Under no circumstances will we go over the grading of your assignment in “real time,” with no forewarning.

General policies:

1) We personally do all the regrades, in conference with the graders.

2) If you request a regrade, the entire assignment will be reviewed. Errors tend to be random and offset each other. It would be unfair to the rest of the class to correct only the grading errors

that went against you but not the ones in your favor.

3) Regrade requests will be accepted for *three weeks* following the *return* of an assignment. If an assignment has multiple parts, the deadline for a regrade request for *any* part of the assignment is three weeks after the return of the *last* part of the assignment.

4) The acceptable margin of error on a 100-point assignment is +/- 2 points. Please do not submit regrade requests for one or two points total. The exception is if we totaled up your points incorrectly: In that case we will correct any size error.