

The Wharton School of the University of Pennsylvania

Real Estate Finance and Investments
REAL 7210: 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, Real Estate Investment Trusts and current events in real estate markets.

Course Materials:

Readings: Most of the readings are chapters from the required textbook, *Real Estate Finance and Investments, 5.2 Edition*, by Linneman and Kirsch. The remainder of the Linneman text is will serve you well through your career. Some of the other readings are from *Commercial Real Estate: Analysis and Investments*, by Geltner, Miller, Clayton, and Eichholtz and we will work to make them available through Lippincott's e-reserve.

Other readings are available on Canvas through the Study.net link or in the "Files>Readings" folder.

Required readings are denoted on the syllabus and students are expected to cover them before class. Many of these readings are necessary to complete problem set assignments that are due before class (see below). Other readings are optional.

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, I often update and modify them a day or two before class, so you should plan to print or download the most current version shortly before class. These slides are not designed to be a substitute for attending class.

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

- Copies of the slides used in class
- Sample Excel spreadsheets from the in-class examples
- Problem sets (both required questions and practice problems) and other assignments
- Case materials
- Old exams (with solutions)
- Supplemental class material, such as newspaper articles
- Announcements, updates, and clarifications
- Discussion threads for Q+A (e.g., about a case)

Problem Sets:

Practice problems: Additional practice problems are meant to be done after class to consolidate your understanding of the material. Doing these problems is a fundamental part of learning the class material and are essential to prepare for the exams. Solutions are provided. I will neither ask you to hand in the problem sets nor grade them. They still are important. Please do the practice problems after the topic in which they are covered. (For example, do Practice Problems set #3 after we cover Topic #3.)

Sample exams: Sample exams will be available on Canvas. I encourage you to do these, timed and without looking at the solutions, in advance of the midterms.

Cases:

There will be two group projects (one pro forma exercise and one case), each of which will include a quantitative component (financial modeling) and a qualitative component.

You will choose your own case team of **three to four members** and must work with the same team on both cases. It is your responsibility to find a team. You and your teammates should sign up under the “team sign-up” section on Canvas before the first exercise is distributed. The cases require a variety of skills, from financial savvy to management. You should try to have a mix of talents and backgrounds on your team. In addition, I strongly discourage you from taking the “divide and conquer” approach of having only one or two team members work on each case.

You will be more successful if the group uses a collaborative process. **You are responsible for making your team work.** If you think a teammate is not working in good faith, or has neglected to finish her/his share of work, you must try hard to work it out within the group. If you still feel aggrieved after the case is turned in, send me an email *before the case is graded*. If two or more serious complaints are registered against you by your group members, 20% will be deducted from your overall case grade.

You may discuss the cases with other groups in this class and give and receive assistance. However, each group must separately prepare their own case materials and write-ups. Cases are to be submitted on Canvas by the due date and time on Canvas. Cases will be due in advance of being discussed in class so I can review them to prepare the class discussion. Any case that is turned in after the deadline but before the class discussion will incur a late penalty of 0.5% per hour. **Cases will not be accepted after the case discussion class starts, nor will extensions be given.**

Examinations:

One exam: The exam will be administered online via Canvas. It will be available for a week starting shortly after the last class and you will have flexibility in when you take it. **You must pass the exam to pass the class** – it is the only individual grade we have for you. I 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).

Material covered: The exam will cover the material presented in class, the class notes, the cases, the practice problems, and the required readings.

Passing the exam: The exam must be passed in order to receive a passing grade for the course.

Grading:

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

- Exam: 35 percent
- Exercise: 30 percent
- Case: 35 percent

Curve: Generally, 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 within section. 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: My policy on regrades is appended to the syllabus.

Classroom Expectations:

Be on time: I will start on time and end on time.

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.

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

Getting help:

Email: Do not think that a question is too "basic" to ask me or the TA. I am happy to help students understand any material they are having difficulty with. All I ask is that you take a serious stab at it yourself before turning to me.

Office hours: It is best to email me and I'll schedule an appointment, even just to chat. We're happy to do so; it's easy by Zoom.

Policy on "AI": Within this class, you are welcome to use AI models for any purpose, except on exams. If you use an AI program, its contribution must be acknowledged in the assignment, and if you include material generated by an AI program, it should be cited like any other reference material. You will be penalized for using an AI program without acknowledgement and the university's policy on plagiarism still applies to any uncited or improperly cited use of work by others, including an AI tool, or submission of work by others as your own. In addition, you are responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or an AI program.

Honor Code:

It is your responsibility to make sure your entire team prepares the cases independently. Violations by any team member will result in the entire team failing the class. Here are the rules: You may verbally discuss the cases, including ideas, approaches, and solution methods, with other students who are currently enrolled in this class. Each group must separately prepare their own case materials and write-ups without reference to anyone else's case materials or write-ups.

You may not obtain assistance, or solicit advice, from former UG or MBA students, current or past employees of firms involved with the cases, or anyone else involved in the real estate investment industry. You also may not provide such assistance or advice once you are no longer enrolled in this class. You may not share your written materials or Excel with anyone.

Violations of these rules will be treated as violations of Penn's Code of Academic Integrity. I do not distinguish between the plagiarizer – the team using other's materials – and the provider of the materials. Do not circulate your solutions to the cases. If I find your case to be the source of plagiarized material, I will report the violation through the University's academic integrity process, even if you have already graduated.

Other items:

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

Wellness statement: I am deeply aware of and sympathetic to the challenges that students may face both in and out of the classroom. Mental health concerns or stressful events may lead

to diminished academic performance or reduce your ability to participate in daily activities. Free, accessible, confidential mental health services are available on campus (see the Counseling & Psychological Services (CAPS) website at <https://caps.wellness.upenn.edu/>). Students should also feel free to reach out to me to discuss any issues or request accommodations as necessary.

Copyright Information:

All federal and state copyrights reserved for all original material presented in this course through any medium, including lecture and print. Any copyrighted material provided in this course is for your personal, noncommercial use and may not be copied and distributed to others without the prior permission of the copyright owner. Individuals are prohibited from being paid for taking or transferring their class notes without my express written permission. **This also means you are not permitted to post class slides, notes, or case materials on course material sharing sites.**

Course Schedule

<p>Class 1: (Friday, January 12, 2 p.m. – 5 p.m. PST)</p>	<p>Topic #1: Overview of real estate markets Topic #2: Pro-forma valuation mechanics and cap rates - NPV - Cap rates - Leases - Leverage</p>	<p>Watch before class: - Valuation video - Cap rate video</p> <p>Required 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.”</p> <p>OR:</p> <p>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</p> <p><u>Optional/Background</u> Linneman, “Prerequisite I: The Basics of Discounted Cash Flow and Net Present Value Analyses” Linneman, “Prerequisite II: IRR: What It Is and What It Isn’t” Berk and DeMarzo, <i>Corporate Finance</i>, chapter 3.3 and chapter 4: “The Time Value of Money.”</p>
<p>Class 2: (Saturday, January 13, 9:00 a.m.– 12:00 p.m.)</p>	<p>Topic #2: Pro-forma valuation, continued. - Leverage - Taxes Graded exercise handed out.</p>	<p>Watch before class: - Amortization video</p> <p>Required BP: <i>Nine Abuses Common in Pro Forma Cash Flow Projections</i></p> <p><u>Optional/Background</u> Linneman, “Prerequisite III: Amortization Fundamentals” Geltner & Miller, Chapter 28: “Investment Analysis of Real Estate Development Projects,” pp.732-753. Graded exercise due on Canvas by January 26.</p>

<p>Class 3: (Friday, January 26, 2:00 p.m. – 5:00 p.m.)</p>	<p>Topic #3: Sources of real estate risk</p> <p>Graded exercise discussion</p> <p>Case made available</p>	<p>Case due on Canvas by February 9.</p>
<p>Class 4: (Saturday, January 27, 9:00 a.m. – 12:00 p.m.)</p>	<p>Topic #4: Real estate markets, sectors, and prices</p>	<p>Required BP: <i>Adjustment Mechanisms in Real Estate Markets</i></p> <p>Linneman [chapter 25] “Real Estate Cycles”</p> <p><u>Optional/Background</u> Geltner & Miller, Chapter 6.1: “Real Estate Market Analysis,” pp.101-114. 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: <i>Superstar Cities</i></p>
<p>Class 5: (Thursday, February 8, 5:30 p.m. – 7:30 p.m.)</p>	<p>Topic #5: REITs</p>	<p>Required Geltner & Miller, Chapter 23: “Real Estate Investment Trusts (REITs),” pp.573-598 BP: Harper, “Basic Valuation of a Real Estate Investment Trust” BP: BofAML REIT Primer, 6th edition, pp. 1-7, 23-24</p>
<p>Class 6: (Friday, February 9, 1:00 p.m. – 4:00 p.m.)</p>	<p>Case discussion</p> <p>Topic #6: Market update</p>	

Week following class	Exam (via Canvas)	

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.