University of Pennsylvania
The Wharton School

Real Estate Finance: Investment and Analysis
REAL/FNCE 209-401/403/404
Spring 2022

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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.

Real estate is a multi-faceted field, encompassing both an operating industry and a broad category of investments. It has its own institutional features, jargon, and investment structures. As the survey course in the Real Estate Department, this class aims to provide a broad overview of the real estate field, rather than a narrow focus on any particular topic. Higher-level classes in the Real Estate Department examine many of the topics from this class in more detail.

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. If you have prior experience in the real estate industry, some topics might be familiar to you already.

FNCE 100 is a prerequisite for enrollment. In rare instances, the requirement may be waived for students with equivalent finance coursework or experience.

Course Materials:

All **readings** are available on Canvas or can be accessed online. Readings are required 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). A few readings are optional, i.e., recommended but not required. Excerpts from the Linneman-Kirsch textbook will be available under "Course Materials@PennLibraries". Other readings are in the "Files>Readings" folder or linked to in the syllabus. One of the optional readings is available on Canvas via Study.net.

For students interested in learning more, we recommend *Real Estate Finance and Investments, Fifth Edition*, by Linneman and Kirsch, from which many of the required readings are drawn. A good alternative with more technical detail is *Commercial Real Estate Analysis and Investments* by Geltner, Miller, Clayton, and Eichholtz. Other supplemental readings are *Investing in REITs* (Block)

and *A Primer of Securitization* (Kendall and Fishman).

Copies of the **PowerPoint slides** used in class will be **posted on Canvas**. Even if some of 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 out or download the most current version shortly before class. These slides are not designed to be a substitute for attending class. Please check **Canvas** regularly for updates relating to the class and additional materials (such as sample Excel spreadsheets from the in-class examples, practice problems and old exams, and supplemental class material and reading).

You should be comfortable using a spreadsheet (e.g., **Excel**) or a financial calculator capable of computing annuities and present values. You are also responsible for knowing how to use the annuity and present value functions. These calculations will be **required** on the exams.

Grading:

The course grade will be based on your performance on **two midterm exams** (20 percent each), **four case assignments** (12.5 percent each, 50 percent total), and **participation** (10 percent).
The case assignments and Class Prep Questions are due *by 11:59pm the NIGHT BEFORE the listed due date*. The due dates and times for all assignments are final. Failure to submit an exam or assignment on time will result in zero points for that exercise. The **regrade** policy is appended to this syllabus.

Exams:

The two midterm exams will be held on **Tuesday, March 1** and **Thursday, April 21** in your regularly scheduled class time. The second exam is not cumulative in content but assumes proficiency in basic skills taught in the first portion of the class. Exams will cover material discussed in class and during guest lectures, as well as the cases, practice problems, and required readings.

Both exams must be passed to receive a passing grade for the course. All exams must be taken at the assigned time unless you request special accommodation ahead of time. If you cannot attend class on the exam dates, please do not take this class. Make-ups will not be given unless you have a Wharton Dean's Office-approved excuse.

Cases:

There will be four group-based cases, each of which will include a quantitative component (financial modelling) and a qualitative component.

You will choose your own case team of **three to four members**, and must work with the same team on all cases. Your group may contain members from any of my sections, but not other professors' sections. It is your responsibility to find a team. You and your teammates should sign up under the "team sign-up" section on Canvas before Case 1 is due. 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 truly 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 and the case TA 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 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 reported in the syllabus, at which time submissions will be automatically locked. **Late cases will not be accepted nor will extensions be given.**

Practice Problems (Not graded):

Additional practice problems will be posted after some classes to consolidate your understanding of the material. These problems are not turned in and not graded, but they are <u>essential</u> to prepare for the exams. Solutions are provided.

Class Participation:

The participation component of your grade will be based on your general participation in class (especially during the case discussions), the share of class-prep assignments you complete (especially if you are unable to attend class due to Red Passes), and your attendance of the class lectures and guest lectures.

To prepare for class, I expect that you do the **required readings**. Throughout the semester, I will assign a series of "**class-prep questions**" and please submit a response to them by **11:59pm the night before class**. These questions are meant to help you think about the topic before we cover it in class. Some are qualitative and don't have a right or wrong answer. Others are quantitative and have a correct answer, but I do not expect you to get it right – the goal is to make you think about a particular issue so that you can get the most out of class. I will review your answers and may call on you to expand on them in class. Your submission will be graded as complete if you have made an effort to think through question.

Classroom expectations:

- I expect you to **be prepared** for class. That means: having completed the *required* readings in advance of the lecture and being ready to comment on or discuss the class material.
- I expect you to **participate** in class discussions and to **speak up if you are confused** (since this typically indicates that others are as well!).
- Technology issues will happen. Please **be patient** with me and your fellow classmates.
- I expect that you will not find every topic we cover to be of interest to you, but that you will

be a good sport about it. Students considering a career in real estate development, for example, are interested in very different things than those considering consulting. All the topics we will cover are of interest to someone in the class, but few are of interest to everyone. Please be patient when I go into depth on a topic that is not especially relevant to you.

Guest Speakers:

Guest speakers are scheduled outside of normal class time, as listed on the schedule below. One regular lecture is canceled for each guest lecture. Attendance is **required**.
If you face a legitimate class conflict and are unable to attend, please submit on Canvas an excuse form *before the start of the guest lecture*. In this case, you are responsible for reviewing the materials if the lecture is recorded, or obtaining notes from your classmates if the lecture is not recorded. I do not record these lectures in instances where doing so would prevent the guest from speaking freely.

- Feb 22 (Tue): **MaryAnne Gilmartin, Founder and CEO, MAG Partners (12:00-1:00pm)**
- Mar 14 (Mon): **Sara Doelger, Principal, Argosy Real Estate (5:30-6:00pm)**
- Apr 4 (Tue): **Jay Mantz, President, Rialto Capital Management (tentative)**

Getting help:

- **Please contact me.** Do not think that a question is too "basic" to ask me. I am happy to help students understand any material they are having difficulty with. All I ask is that you take a stab at it yourself before turning to me. I hold regular office hours, take appointments, and answer questions by email.
- Get help from **your TAs**. The TAs will also hold *office hours* and host optional *Excel modeling recitations* (dates will be announced on Canvas) to help you prepare for **case assignments**. The TAs will hold *office hours* to help you prepare for **exams**. These office hours and modeling recitations will be scheduled and posted on Canvas shortly after the start of the semester. Each TA will advise students on a specific case as follows:
    - Case 1: Adam Bernstein (abernst@wharton.upenn.edu)
    - Case 2: Marisa Shu-Han Yang (marisa29@wharton.upenn.edu)
    - Case 3: Kshitiz Garg (kshitizg@wharton.upenn.edu)
    - Case 4: Priyansh Gupta (pgupta15@wharton.upenn.edu)
- The TAs and I will post on **Q&A discussion boards** on Canvas ahead of case due dates and exams. Please check that we haven't already answered your question there before emailing.

Disclaimer:

We are undertaking this course in the midst of a global pandemic and economic crisis. I am deeply aware of and sympathetic to the challenges that students are facing both in and out of the classroom, and students should feel free to reach out to discuss any issues. My goal is to make the course as engaging as possible, and will need everyone's help to make that happen in the hybrid classroom. I will maintain the highest standards, while of course allowing for flexibility given the circumstances. I welcome any comments on how to improve the course. Above all else, please be kind to one another.

Honor code:

You may discuss the cases and problems with other students who are currently enrolled. You may not obtain assistance, or solicit advice, from former students, current or past employees of firms involved with the assignment, or anyone else involved in the real estate investment. Each case team must separately prepare their own case materials and write-ups without reference to anyone else's case materials or write-ups. You may not share your written or Excel case materials, and you may not circulate suggested solutions to cases. Violations of these rules will be treated as violations of Penn's Code of Academic Integrity and will be strictly enforced and reported.

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 may not be paid for taking or transferring their class notes without my express written permission.

Course Schedule (Spring 2022)

All readings are required unless designated as optional. All assignments are due ***11:59PM the night BEFORE the designated due date***.

Date	Lecture Topic	Assignments	Preparation
Thu, Jan 13	Course requirements, class overview, and overview of real estate markets		(Refresher) Linneman, "Prerequisite I: The Basics of Discounted Cash Flow and Net Present Value Analyses," pp. 364-73 (Refresher) Linneman, "Prerequisite II: Internal Rate of Return," pp. 378-83
Tue, Jan 18	Elements of real estate value: income and expenses; pro-forma setup		Linneman, chapter 5: "Property Level Pro Forma Analysis," pp. 55-69
Thu, Jan 20	Introduction to leases and the economics of retail malls	CPQ: Retail Leases	Linneman, chapter 4: "The Fundamentals of Commercial Leases," pp. 45-54
Tue, Jan 25	Leases (continued) and property-level risk and return		Cornfield, "Leases are getting shorter and rents are dropping with U.S. office market in turmoil"
Thu, Jan 27	Cap rates; Evaluating pro formas		Linneman, chapter 9: "The Use and Selection of Cap Rates"
Tue, Feb 01	**Case #1 discussion**	**Case 1 Due**	
Thu, Feb 03	Class cancelled in lieu of guest lecture		
Tue, Feb 08	Mortgages and debt in the pro forma	CPQ: Mortgage Math Refresher	Linneman, "Prerequisite III: Amortization Fundamentals," p. 384-96 Linneman, chapter 15: "The Use of Debt and Mortgages," pp. 225-233
Thu, Feb 10	Refinancing and the risks and reward of leverage	CPQ: Refinance	Linneman, chapter 15: "The Use of Debt and Mortgages," pp. 233-236
Tue, Feb 15	Debt financing, land leases, hybrid structures, and partnerships		Linneman, Chapter 17: "Ground Leases as a Source of Finance," pp. 249-255 Maira, "Understanding Real Estate Joint Ventures"

Thu, Feb 17	**Case #2 discussion**	**Case 2 Due**	
Tue, Feb 22	Taxes and real estate		Linneman, chapter 5: "Property Level Pro Forma Analysis," pp. 70-76 Sullivan, "How Loopholes Help Trump and Other Real Estate Moguls Avoid Taxes"
Tue, Feb 22	*Guest lecture: MaryAnne Gilmartin, MAG Partners (12:00-1:00pm)*		
Thu, Feb 24	Midterm 1 Review	CPQ: Getting to ATCF	"Getting to ATCF" Worksheet
Tue, Mar 01	**Midterm Exam #1**		
Thu, Mar 03	Class cancelled in lieu of guest lecture		
Tue, Mar 08	Spring Break		
Thu, Mar 10	Spring Break		
Mon, Mar 14	*Guest lecture: Sara Doelger, Argosy Real Estate (5:30-6:30pm)*		
Tue, Mar 15	Equity securitization and the REIT market		BofAML REIT Primer, 6th edition, pp. 1-7, 23-24 Bohialian and Cheigh, "Buying the REIT Recovery in a Dislocated Market" Green Street Advisors, "High Priced != Overpriced"
Thu, Mar 17	Equity securitization and the REIT market (continued)	CPQ: REITs Cashflow	Thomas, "Bankrupted JC Penney plans to spin its properties into separate real estate company" Brewer, "REIT Investors need to pay attention to this scary lawsuit"
Tue, Mar 22	Securitization of debt interests: Commercial Mortgage-Backed Securities		Cibelli, Lord Abbett Investment Brief, CMBS 2017

Thu, Mar 24	Securitization of debt interests: CMBS (continued)	CPQ: CMBS Risk Retention	Di Salvo and Johnston, "Skin in the Game in the CMBS Market"
Tue, Mar 29	**Case #3 discussion**	**Case 3 Due**	
Thu, Mar 31	Real estate cycles		Smith, Adjustment Mechanisms in Real Estate Markets (study.net) (optional) Linneman, chapter 25: "Real Estate Cycles," pp. 344-358 (optional)
Mon, Apr 04	*Guest lecture: Jay Mantz, Rialto Capital Management - tentative*		
Tue, Apr 05	Real estate cycles (continued)		Chinchilla, "Philly City Council votes to extend eviction ban as part of emergency aid to renters"
Thu, Apr 07	The rent/own decision - residential real estate	CPQ: Should You Buy or Rent?	Falcone, "Why Buying a Home is a Smart Investment for Millennials" Olick, "It's Better to Rent than Buy in Today's Housing Market"
Tue, Apr 12	The rent/own decision - corporate real estate	CPQ: Zynga's Sale-Leaseback	Raice, "Zynga to Spend $228m on SF Property" Takahashi, "Zynga sells its SF HQ for $600m" Arata, "How Coworking is Shaping the Office Market" Linneman, chapter 23, "Corporate Real Estate Decision-Making," pp. 320-33 (optional)
Thu, Apr 14	**Case #4 discussion**	**Case 4 Due**	
Tue, Apr 19	Midterm 2 Review		
Thu, Apr 21	**Midterm Exam #2**		
Tue, Apr 26	Class cancelled in lieu of guest lecture		

Regrade Policy

I strive for accuracy and equity in the grading for this class. However, despite our best efforts, grading is sometimes imperfect and the onus for bringing any errors to my attention falls upon you. 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 my attention.

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 submit it to the relevant "Regrade" assignment on canvas.

2. My 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 to the relevant "Regrade" assignment on canvas. Be sure to take the time to make sure you understand the errors you made before submitting the regrade request.

3. To aid your understanding of the material and of the grading philosophy, I 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 to the relevant "Regrade" assignment on canvas. 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 were too generous with the points given. In addition, under no circumstances will I 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 standard.

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

General policies:

- I personally do all the regrades, in conference with the graders.
- 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.
- Regrade requests will be accepted for ***one week*** 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 one week after the return of the *last* part of the assignment.
- The acceptable margin of error on a 100-point assignment is +/- 2 points. I will not consider regrade requests for one or two points total. The exception is if we totaled up your points incorrectly: in that case, I will correct any size error.
- Please submit your regrade request via Canvas.