University of Pennsylvania
The Wharton School

Real Estate Finance: Investment and Analysis
REAL/FNCE 721-405/406
Spring 2022
JMHH G55 (406) & JMHH G60 (405)

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Preliminary and subject to change.

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Email: handbury@wharton.upenn.edu   and by appointment

Note: We cover real material on the first day of class, so attendance is mandatory.

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 611 (or 612) is a prerequisite for enrollment. In certain 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. Some readings are required (listed below with an asterisk *) and students are expected to cover them before class. Many of these readings are necessary to complete class prep questions that are due before class (see below). Other readings are optional, i.e. recommended but not required. Excerpts from the Linneman-Kirsch textbook are available under "Course Materials@PennLibraries". Other readings are in the "Files>Readings" folder, linked to in the syllabus, or available on Canvas via Study.net.

Course Materials (cont.):

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**. You should plan to print them 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 **financial calculator** capable of computing annuities and present values. You are responsible for knowing how to use these functions. These calculations will be required on the exams. Any calculator able to perform the above functions will do, but we recommend the HP 10b11+. You can borrow one of these from the Lippincott library.

Grading:

The course grade will be based on your performance on **two midterm exams** (20 percent each), **three case assignments** (40 percent total, divided evenly), one **individual assignment** (8 percent), and **participation** (12 percent). Details on each are provided below. 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.

Each assignment is **curved** by section 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.

Exams:

The two midterm exams will be held on **Monday February 28** and **Wednesday, April 20** 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 in order to receive a passing grade for the course. In-class exams must be taken at the assigned time and online exams must be taken on the assigned day. **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 three group projects, each of which includes a quantitative component (financial modelling) and a qualitative component.

You will choose your own group of **three to four members of your own section** and must work with the same team on all four cases. **Register your team** on Canvas before Case 1 is due.

The cases require a variety of skills, from financial savvy to management, so try to have a mix of talents and backgrounds on your team. I strongly encourage you *not* to take the "divide and conquer" approach of having only one or two team members work on each case. You will be much more successful if the group uses a truly collaborative process. You are responsible to make your team work, so please **select your team members carefully**. 20% of your overall case grade will be based on the median evaluation you receive from your teammates at the end of the semester.

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. All cases should be submitted on Canvas by 8:00am on their respective due dates, after which time submissions will lock automatically. **Late case submissions will not be accepted.**

Modeling Assignment:

There will be one individual assignment to help students develop modeling skills. This assignment must be completed ***individually***. Each component will be graded on a pass/fail basis.

Class Prep Questions:

To prepare for class, I expect that you do the **required readings** and, when assigned, submit a response to the **class-prep questions** by midnight 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. You may skip three without penalty.

Attendance and Participation:

Attendance and participation can count for up to a third of a letter grade. Sub-par participation includes violations of the attendance and technology policies outlined below.

During class, I will periodically post **in-class quizzes** during class to make sure that everyone is keeping up with the material (and not falling asleep!). I will also **cold call**, as necessary, so we hear from everyone.

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 (unless we have discussed otherwise) and to **speak up if you are confused** (since this typically indicates that others are as well!). ***If the entire class has to go virtual and you are unable to attend class synchronously,*** please let me know via the pre-semester survey and we can find other ways for you to engage in the class (e.g., office hours, Canvas discussion boards, etc.).
- 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 I go into depth on a topic that is not especially relevant to you.
- The **seat** you choose on the third class meeting (January 26) is yours for the entire semester. Please sit there every class, except during exams, when I will randomly assign new seats.
- I appreciate it if you display your **name tents**.

Guest Speakers:

Guest speakers are scheduled outside of normal class time, as listed on the schedule below. Two 90-minute regular lectures are canceled to make up for the three one-hour guest lectures. These sessions are **required** material. I do not record these lectures in instances where doing so would prevent the guest from speaking freely. If this is the case, you will need to get the notes from someone else if you are unable to attend.

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 hold *excel modeling recitations and office hours* to help you on case assignments and *optional review sessions* to review quantitative practice problems ahead of the exam. These office hours and review sessions will be scheduled and posted on Canvas shortly after the start of the semester. Each TA will advise students on a specific case or midterm prep as follows:
    o Case 1: Brian Fulginiti (bfulgi@wharton.upenn.edu)
    o Case 2: Sergio Claure (sclaure@wharton.upenn.edu)
    o Case 3: Amine Soufaih (asoufaih@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 continuing global pandemic and changing economic environment. 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 "masked" classroom – and especially if we revert to virtual. 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

Required readings are marked with an asterisk (*). Other readings are optional.

Class Prep Questions (CPQ) are provided in italics and are due at midnight the day before class.

Date	Topic	Preparation
Jan 19 (Wed)	Topic #1: Real estate valuation and returns	Linneman, "Prerequisite I: DCF and NPV" Linneman, "Prerequisite II: Internal Rate of Return" Keys, "Why Automation Is Killing the Property Appraisal Business" *Linneman, ch. 9: "The Use and Selection of Cap Rates"
Jan 24 (Mon)	Topic #2: Pro forma set up **Case #1 distributed**	*Linneman, ch. 5: "Property Level Pro Forma Analysis," pp. 55-69
Jan 26 (Wed)	Topic #3: Property-level risk and return **Seat selection**	*Cornfield, "Leases are getting shorter and rents are dropping with U.S. office market in turmoil" *Massachusetts Multifamily Pro Forma **Class Prep Question (CPQ)**: Sensitivity Analysis
Jan 31 (Mon)	Topic #4: Leases	*Linneman, ch. 4: "The Fundamentals of Commercial Leases," pp. 45-54 **CPQ**: Retail leases
Feb 2 (Wed)	Topic #5: Simple mortgages & debt in the pro forma **Modeling assignment distributed**	*Linneman, "Prerequisite III: Amortization Fundamentals," p. 384-96 *Linneman, ch. 15: "The Use of Debt and Mortgages," pp. 225-233 **CPQ**: Mortgage Math Refresher
Feb 7 (Mon)	**Case #1 discussion**	**Case #1 due by 8am**
	Guest lecture: Sara Doelger, Principal, Argosy Real Estate (5:30-6:30pm)	
Feb 9 (Wed)	Class cancelled in lieu of guest lectures	
Feb 14 (Mon)	Topic #6: Risk and rewards of leverage	*Linneman, ch. 15: "The Use of Debt and Mortgages," pp. 233-236 **CPQ**: Refinancing
Feb 16 (Wed)	Topic #7: Alternative financing structures	*Linneman, ch. 17: "Ground Leases as a Source of Finance," pp. 249-255 *Maira, "Understanding Real Estate Joint Ventures" **CPQ**: Massachusetts Multifamily Pro Forma
Feb 21 (Mon)	**Financing decision discussion** Topic #8: Taxes	**Modeling assignment due by 8am** *Linneman, ch. 5: "Property Level Pro Forma Analysis," pp. 70-76 *Sullivan, "How Loopholes Help Trump and Other Real Estate Moguls Avoid Taxes"
Feb 23 (Wed)	Topic #8: Taxes (continued)	*"Getting to ATCF" worksheet
Feb 28 (Mon)	**Midterm Exam #1**	

Date	Topic	Preparation
Mar 14 (Mon)	Topic #9: Cycles **Case #2 distributed**	Smith, Adjustment Mechanisms in Real Estate Markets (study.net) Linneman, ch. 25: "Real Estate Cycles," pp. 344-358
Mar 15 (Tue)	**Guest lecture: MaryAnne Gilmartin,** *Founder and CEO*, MAG Partners (5:30-6:30pm) - *tentative date*	
Mar 16 (Wed)	Topic #9: Cycles (continued)	*Chinchilla, "Philly City Council votes to extend eviction ban as part of emergency aid to renters" **CPQ**: The Current Cycle
Mar 21 (Mon)	Topic #10: 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"
Mar 23 (Wed)	Topic #10: Equity securitization and the REIT market, continued	*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" **CPQ**: REIT valuation
Mar 28 (Mon)	**Case #2 discussion** **Case #3 distributed**	**Case #2 due by 9am**
Mar 30 (Wed)	Topic #11: Securitization of Debt Interests: Commercial Mortgage-Backed Securities	*Cibelli, Lord Abbett Investment Brief, CMBS 2017
Apr 4 (Mon)	Topic #11: Securitization of Debt Interests: Commercial Mortgage-Backed Securities (continued)	*Di Salvo and Johnston, "Skin in the Game in the CMBS Market" **CPQ**: CMBS Risk Retention
	Guest lecture: Jay Mantz, *President*, Rialto Capital Management (5:30-6:30pm) - *tentative date*	
Apr 6 (Wed)	Topic #12: Housing and the Rent-vs-Own Decision	*Falcone, "Why Buying a Home is a Smart Investment for Millennials" *Olick, "It's Better to Rent than Buy in Today's Housing Market" **CPQ**: Should you buy or rent?
Apr 11 (Mon)	**Case #3 discussion**	**Case #3 due by 8am**
Apr 13 (Wed)	Class cancelled in lieu of guest lectures	
Apr 18 (Mon)	Topic #13: Corporate Real Estate Usage Decisions	*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, ch. 23, "Corporate Real Estate Decision-Making," pp. 320-33 **CPQ**: Zynga's Sale-Leaseback
Apr 20 (Wed)	Midterm Exam #2	

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.
- Do not submit regrade requests by email.