

University of Pennsylvania
The Wharton School

Real Estate Finance: Investment and Analysis
Fall 2019
REAL/FNCE 209/721

Updated August 19, 2019

Professor Ben Keys
1461 Steinberg Hall-Dietrich Hall
email: benkeys@wharton.upenn.edu

Office Hours: Tuesdays, 3:00-4:30 p.m.
and by appointment
phone: 215-746-1253

Course Objectives:

- 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 in more detail many of the topics from this class.

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

Course Materials:

Textbook: *Real Estate Finance and Investments, Fifth Edition*, by Peter Linneman and Bruce Kirsch is required. It is available in the Bookstore. Two good supplemental texts are *Commercial Real Estate Analysis and Investments* by Geltner, Miller, Clayton, and Eicholtz and *Real Estate Finance and Investments* by Bruggeman and Fisher. Other interesting supplemental readings are *Investing in REITs* (Block) and *A Primer on Securitization* (Kendall and Fishman).

Readings: Additional required readings are available at Study.net, on Canvas, or can be accessed online. Some will be required, others recommended. Required readings will be the topic of short quizzes to be taken before class (see below).

Class notes: Copies of the PowerPoint slides used in class will be posted 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 out or download the most current version shortly before class. These slides are not designed to be a substitute for attending class.

Calculator: You must have 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. You will need the calculator for the exams. Any calculator able to perform the above functions will do, but we recommend and offer support for the HP 10b11+. You can also borrow a calculator for the semester from Lippincott Library (contact Cynthia Cronin-Kardon, croninkc@wharton.upenn.edu).

Handouts: Occasional handouts will be distributed in class. I will bring handouts to class only once. After that, extra copies will be available outside my office door. You can pick them up there or, if they are also available digitally, you will be able to download them from Canvas.

Class Preparation:

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 readings on study.net. You should read them in advance of the class in which they are listed.

Optional readings: For interested students, especially real estate majors, I will provide additional 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 #9 after we cover Topic #9.) I will neither ask you to hand in the problem sets nor grade them. This is not an indication that I consider them unimportant.

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

Guest Speakers:

Guest speakers are scheduled outside of normal class time. These sessions are **required** material. These lectures are not videotaped so the guests feel comfortable speaking freely. You will need to get the notes from someone else if you are unable to attend. The guest lectures are:

- Kimberly Sherman Stamler, Related Beal, October 14, 4:30pm, SHDH 351
- Ritson Ferguson, CBRE Investors, November 4th, 4:30pm, room TBA
- Eric Schiela, Rubenstein Partners, November 13, 4:30pm, room TBA

Cases:

Workload: There will be three group projects, with the first case involving an individual component.

Distribution: Cases will be handed out in class. They will not be available electronically.

Teams: You will choose your own case team of **three to four members**, and must work with the same team on all three cases. For 721, your group may contain members from either 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 with 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. If I hear complaints about free-riding in the first group assignment, I will consider implementing a more structured peer assessment system

Independent work: 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.

Due dates: Cases will always be due before 10:30 a.m. on the day the case is discussed in class.

Late cases will not be accepted nor will extensions be given.

Examinations:

Workload: Two midterm exams will be held in regularly scheduled class time. You must take the exam during your section time – no switching sections will be permitted.

- Wednesday, October 9th
- Wednesday, December 4th

Material covered: Exams will cover the material examined in class and during guest lectures, the class notes, the cases, the practice problems, and the required readings. Exam 2 is not cumulative in content, but assumes proficiency in basic skills taught in the first portion of the class.

What you can bring in: The exams are closed-book, but you are allowed to bring one 8.5 x 11" piece of paper (double-sided) of notes into each exam. You will need to bring a financial calculator to both exams. You will not be allowed to use a computer.

Exam seating: Seats will be randomly assigned on exam days.

Passing the exams: Both exams must be passed in order to receive a passing grade for the

course.

Exam makeups: Exams must be taken at the assigned time. *If you know in advance that you will not be able to attend class on the exam dates, do not take this class.* Make-ups are not given unless you have a Wharton Dean's Office-approved excuse. For a medical excuse, you must have been admitted for treatment by student health services or the hospital, or have a doctor's note explaining that you were incapacitated. Being seen is not enough.

Quizzes:

There will be short multiple-choice quizzes throughout the course, covering the required readings. They are designed to help you stay on track with the course material and ensure that everyone is up to speed for discussions in class.

Quizzes will be administered on Canvas and must be completed before class. The dates are indicated in the syllabus. **Quizzes will be open from 1 pm on the day before a particular reading is due through 10 am on the day of the lecture.** It will approximately take you 15 minutes to take each quiz. I will drop the quiz with the lowest score.

Quizzes should be taken individually. You may discuss the contents of the required readings with your classmates, but you should take each quiz on your own. I expect you to abide to the honor code (see below) and **I will take allegations of cheating very seriously.**

Some quizzes include non-graded questions that are meant to help you prepare for the ensuing class discussions.

Grading:

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

- Exams: 50 percent (25 percent each); you must pass each individually
- Cases: 40 percent (16/12/12 percent, respectively)
- Quizzes: 10 percent

Attendance: I take attendance by circulating a sign-up sheet at the beginning of each class. It is your responsibility to sign it. If you forget, I will count that as an absence. Attendance is required both for regular classes and for guest lectures (see below). Attendance and participation can count for up to a third of a letter grade.

Curve: Each individual assignment is curved by section (that is, different curves for 209 and 721) 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.

Seating:

Seating property rights: Whatever seat you choose on the *second* class meeting (September 4) is yours for the entire semester. We will hold it for you until class starts. Please sit there every class. However, if you are late for class, your seat may be taken by someone switching in.

Switching sections: I understand that sometimes conflicts arise and I believe it is better to attend some class than no class. However, my experience has been that I need to exercise some crowd control. So:

- **No switching sections on exam days.**
- Also, in general, please do not switch sections unless you have an unavoidable conflict.
- If you have a conflict and must switch sections, wait by the side of the room until a couple of minutes after the start of class. At that point, you may take any open seat.
- I reserve the right to change this policy and limit students to attending the section they are enrolled in. This policy is not intended to let students sign up for one section and regularly attend another. Frequent switching is abuse of this policy and I reserve the right to ask for proof of any class conflict.

Classroom Expectations:

Be on time: I will start on time and end on time. Do not arrive late.

Electronics: You may not use computers, smartphones, Blackberries, etc., unless medically necessary. I will ask you to put the device away. You may use an iPad or other flat tablet to read and annotate the class notes.

Name tents: I appreciate it if you display your name tents.

Be prepared: Complete the *required* readings in advance of the lecture and be ready to comment on or discuss the class material.

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

Guest speakers: Be physically present for the talks by outside speakers unless you have a conflict with another class.

Good sport: 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 who are considering a career in real estate development, for example, are interested in very different things than students who are considering a career on Wall Street. All the topics we will cover are of interest to someone in the class, but few are of interest to everyone. Please recognize that your classmates and you do not necessarily share the same tastes when I go into depth on a topic that you feel is not especially relevant to you.

Getting help:

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

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

Email: Do not think that a question is too “basic” to ask me or the TAs. 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. The Canvas discussion threads are also a good place to ask questions.

Office hours: I hold regular office hours Tuesdays from 3:00-4:30pm. Sign up on Canvas. If you can’t make that time, email me and we’ll schedule an appointment.

TAs: There are four TA’s for the course. They will hold office hours to review problem sets, and for help in preparing for cases and midterms. The timing of these will be announced later.

- Gray Cherry (cherryeg@wharton.upenn.edu)
- Rachel Delia (rdelia@wharton.upenn.edu)
- Ronak Mehta (ronakm@wharton.upenn.edu)
- Iman Tajadod (itajadod@wharton.upenn.edu)

Disclaimers:

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

Pass/fail: Be aware that it is the policy of the Real Estate Department that students who take the class pass/fail cannot count the course toward the five credits necessary to complete the real estate concentration.

Honor Code: You may discuss the cases with other students who are currently enrolled. Each student (group) must separately prepare their own case materials and write-ups for the individual (group) assignments 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.

Tentative Course Schedule

Date	Topic	Preparation
1. August 28	Topic #1: Course requirements, class overview, and overview of real estate markets	
<i>September 2</i>	<i>NO CLASS (LABOR DAY)</i>	
2. September 4	Topic #2: Elements of real estate value: income and expenses; pro-forma setup Choose your seats today! (Get to class early.) Case #1 handed out	*Linneman, chapter 5: “Property Level Pro Forma Analysis,” pp. 55-69
3. September 9	Topic #2, continued: Cap rates; Property-level risk	*Linneman, “Prerequisite I: The Basics of Discounted Cash Flow and Net Present Value Analyses,” pp. 364-73 *Linneman, “Prerequisite II: Internal Rate of Return,” pp. 378-83 Linneman, chapter 9: “The Use and Selection of Cap Rates”
4. September 11	Topic #3: Mortgages and debt in the pro forma	*Linneman, chapter 15: “The Use of Debt and Mortgages,” pp. 225-233 *Linneman, “Prerequisite III: Amortization Fundamentals,” p. 384-96
5. September 16	Topic #3: Mortgages, continued Topic #4: Taxes and Real Estate	*PWC, “Tax Reform and Real Estate: Impact of the TCJA” (on Canvas) Linneman, chapter 5: “Property Level Pro Forma Analysis,” pp. 70-83
6. September 18	Topic #5: Evaluating Pro Formas	*Linneman, chapter 10: “Development Pro Forma Analysis”
7. September 23	Topic #5, continued Case #1 Part 1 due before 10:30 a.m.	Linneman, chapter 11: “Development Feasibility Analysis”
8. September 25	Topic #6: Debt financing, land leases, hybrid structures, and partnerships	*Arnold and Oharenko, “Guide to Real Estate Capital Markets: Participating Debt and Equity,” pp. 34-45 (study.net) Linneman, Chapter 17: “Ground Leases as a Source of Finance”
9. September 30	Topic #6, continued	*Maira, “Understanding Real Estate Joint Ventures” (on Canvas) Linneman, chapter 19: “Real Estate Private Equity Funds”

10. October 2	Case #1 Part 2 due before 10:30 a.m. Case Discussion	
11. October 7	Topic #7: Introduction to leases and the economics of retail malls	* Linneman, chapter 4: “The Fundamentals of Commercial Leases”, pp. 45-54 * Mulholland, “Mall Owners, Retailers Clash on Avalanche of Online Returns” (on Canvas)
12. October 9	Midterm Exam 1	
<i>October 14</i>	NO CLASS – CANCELLED (in lieu of guest speaker)	
October 14	4:30pm: Guest Speaker: Kimberly Sherman Stamler	SHDH 351
13. October 16	Topic #8: Equity securitization and the REIT market Case #2 handed out	* Linneman, chapter 21: “REITs and Liquid Real Estate” * BofAML REIT Primer, 6 th edition, pp. 1-7, 23-24 (on Canvas)
14. October 21	Topic #8: Equity securitization and the REIT market, continued	* BofAML REIT Primer, 6 th edition, pp. 24-30 and 33-34 (on Canvas)
15. October 23	Topic #9: Securitization of Debt Interests: Commercial Mortgage-Backed Securities	* Linneman, chapter 16: “Sources of Long- and Short-Term Debt,” pp. 238-48
Friday, October 25	Zell/Lurie Fall Meeting (recommended, not required)	
16. October 28	Topic #9, continued Case #2 Part 1 due before 10:30am	* Di Salvo and Johnston, “Skin in the Game in the CMBS Market” (on Canvas)
17. October 30	Topic #9: Securitization of Debt Interests: Commercial Mortgage-Backed Securities, continued	
18. November 4	Case #2 Part 2 due before 10:30am Case #2 discussion	
19. November 6	Topic #10: Real estate cycles Case #3 handed out	* Ferre-Sadurni et al., “Landmark Deal Reached on Rent Protections for Tenants in N.Y.” (on Canvas) * Corgel, “Is Overbuilding Risk Declining? Evidence from Hotel Markets” (on Canvas)

		Smith , Adjustment Mechanisms in Real Estate Markets (study.net) Linneman, chapter 25 : “Real Estate Cycles,” pp. 344-358
20. November 11	Topic #11: Housing Markets	* Falcone , “Why Buying a Home is a Smart Investment for Millennials” (on Canvas) * Olick , “It’s Better to Rent than Buy in Today’s Housing Market” (on Canvas)
21. November 13	Topic #11: Housing markets, continued Topic #12: The rent/own decision in residential real estate	* Glaeser and Sinai , “Postmortem for a Housing Crash” (on Canvas)
November 13	4:30pm: Guest Speaker: Eric Schiela	SHDH 351
22. November 18	Topic #12: The rent/own decision in corporate real estate	* Raice , “Zynga to Spend \$228m on SF Property” (on Canvas) * Takahashi , “Zynga sells its SF HQ for \$600m” (on Canvas) * Arata , “How Coworking is Shaping the Office Market” (on Canvas) Linneman, chapter 23, “Corporate Real Estate Decision-Making,” pp. 320-33
23. November 20	Case #3 discussion Case #3 due before 10:30 a.m.	
November 25	<i>NO CLASS – CANCELLED</i> <i>(in lieu of guest speaker)</i>	
November 27	<i>NO CLASS (DAY BEFORE THANKSGIVING)</i>	
24. December 2	Topic #13: Appraisals and Other Valuation Approaches Midterm Review	* Keys , “Why Automation is Killing the Property Appraisal Business,” podcast+article on Canvas
25. December 4	Midterm Exam 2	
December 9	<i>NO CLASS – CANCELLED</i> <i>(in lieu of guest speaker)</i>	

Regrade Policy

I strive for accuracy and equity in the grading for this class. However, despite my 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 my attention.

- The onus for bringing any errors to my 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.
- 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. 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.
- 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.
- 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 I will correct any size error.
- 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 place both in my mailbox in SHDH.
- 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 along with the assignment to my mailbox in SHDH.
- 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 along with the assignment to my mailbox in SHDH.
- 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.
- **Do not submit regrade requests by email.**