

University of Pennsylvania  
The Wharton School

**Real Estate Finance: Investment and Analysis**  
**Spring 2018**  
**REAL/FNCE 209 – JMHH F60**

*Updated January 31, 2019*

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Office Hours: Tuesday, 12:00-1:30 p.m.  
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**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. We delve more deeply into a handful of aspects of the real estate field when I believe they are particularly relevant or when the example provides a more general insight. Higher-level classes in the Real Estate Department examine in more detail many of the topics from this class.

**Course Materials:**

**Textbook:** *Real Estate Finance and Investments, Fifth Edition*, by Linneman is required. It is available in the Bookstore. Used copies are okay – the syllabus lists page numbers for both the 5<sup>th</sup> and 4<sup>th</sup> editions. A good supplemental text is *Commercial Real Estate Analysis and Investments* by Geltner, Miller, Clayton and Eicholtz. Other interesting supplemental readings are *Investing in REITs* (Block) and *A Primer on Securitization* (Kendall and Fishman)

**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 out or download the most current version shortly before class. These slides are not designed to be a substitute for attending class.

**Readings:** Available at Study.net, these fall into two categories:

- (a) Required readings
- (b) Recommended (but optional) readings

The syllabus denotes required readings in **boldface type** and with a star (\*)

**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.

**Handouts:** Handouts will generally be made available electronically on Canvas. Occasionally, handouts will be distributed in class and billed by the bursar. 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 bulkpack. You should read them in advance of the class in which they are listed.

**Optional readings:** For interested students, especially real estate majors, 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 #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:** Three years' worth of 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 and substitute for regularly-scheduled classes. Generally, I do not videotape these lectures 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:

- Tuesday, February 12, 6 p.m., Olivia John, Managing Director, Blackstone [SHDH 350]
- Tuesday, April 2, 6 p.m.: Carl Tash, Managing Director, Starwood Capital Group
- Tuesday, April 9, 6 p.m.: Jay Mantz, President, Rialto Capital Management

### Cases:

**Workload:** There will be three group projects. They take considerable time. Plan accordingly.

**Distribution:** Cases will be handed out in class or will be made available on Canvas.

**Teams:** You will choose your own case team of three to five members, and must work with the same team on all three cases. Your group may contain members from any of my sections of 209. You and your teammates should sign up under the "team sign-up" section on Canvas. 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 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 more successful if the group uses a truly collaborative process.

It is your responsibility to find a team. I will not assign you to a team and cannot require a team to accept you as a member.

**Rule about independent work:** 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 FNCE/REAL 209. 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 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 and do my best to retroactively change your grade.

**Due dates:** Cases will be due well in advance of being 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.

- Thursday, February 28
- Tuesday, April 30

**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 the 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.

**Attendance:**

The course builds on itself and depends on your participation to be most useful. To that end, attendance is required, starting with the fourth class session.

**Process:** You will need to check in from the classroom using the WhartonConnect app. You can check in up to 10 minutes before the start of class and will have a few minutes of grace period once class starts. The app will give you a green check mark and "okay" if your check-in was successful.

**Late-to-class:** If you are late and miss the grace period, you will be marked absent.

**Freebies:** I recognize that sometimes you cannot avoid being late or missing a class. Your first absences will not count against your attendance grade; only once your total absences exceed a threshold number will they matter. (The exact threshold is not known to you, so the safest thing is to miss no classes.) Please do not contact me about why you missed class (or, if you were in class but forgot to check in) – that's what the "freebies" are for.

**Academic integrity:** Cheating on the WhartonConnect check-in is cheating and will be treated as such. You must be in the classroom when you check in and remain there for class. (Note: The penalty for missing a class is much, much less than the penalty for cheating weighted by the probability of being caught. Only check-in if you are actually at class.)

**Grading:**

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

- Exams: 40 percent (20 percent each); you must pass each individually.
- Cases: 50 percent (20 percent for Case 1, 15 percent each for cases 2 and 3).
- 10 percent attendance.
- You get a 0 for the class if you do not get a 100% on the "I read the syllabus" quiz on Canvas. That quiz has just one question, "Did you read and understand the syllabus?" The correct answer is "Yes." I allow retakes.

**Curve:** Generally, each individual 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. 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:**

**Assigned seats:**

- Whatever seat you choose on the *fourth* class meeting (January 29) is yours for the entire semester. Please sit there every class so I can grade your attendance correctly.

**No switching sections:** Sorry.

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

**Electronics:** Research shows that electronics in class distracts you and your classmates, so I'm banning them. You may not use computers, smartphones, etc., unless medically necessary. Bring copies of the class slides on paper.

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

**Be prepared:** Completed 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.

**Getting help:**

**Canvas:** I 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, 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. 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:** I hold regular office hours Tuesdays 12:00-1:30. Sign up on the Calendar. If you can't make that time, email me and we'll schedule an appointment.

**Disclaimers:**

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

## Course Schedule

Date	Topic	Preparation
1. January 17	Topic #1: Course requirements, class overview, and overview of real estate markets	<b>*BP #1:</b> <i>Emerging Trends in Real Estate 2019</i> , chapters 1-2. Linneman [4 <sup>th</sup> : chapter 2, pp.12-25; 5 <sup>th</sup> : chapter 2, 16-29.] “What Is Real Estate?”
2. January 22	Topic #2: Elements of real estate value: income and expenses; pro-forma setup	<b>Take the “I read the syllabus” quiz on Canvas.</b>  <b>*Linneman [4<sup>th</sup>: chapter 4, pp. 43-55; 5<sup>th</sup>: chapter 5, pp. 55-69]</b> “Property Level Pro Forma Analysis” <b>*Linneman [4<sup>th</sup>: chapter 5; 5<sup>th</sup>: chapter 6]</b> “Financial Modeling” 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 (Third Edition)</i> , chapter 4: “The Time Value of Money.”
3. January 24	Topic #2, continued: Cap rates; Property-level risk	<b>*Linneman [4<sup>th</sup>: chapter 7; 5<sup>th</sup>: chapter 9]</b> “The Use and Selection of Cap Rates”
4. January 29	Topic #3: Mortgages <b>Choose your seats today! (Get to class early.)</b>	Linneman, “Prerequisite III: Amortization Fundamentals”
5. January 31	Topic #3: Mortgages, continued Topic #4: Taxes and Real Estate	<b>*Linneman [4<sup>th</sup>: chapter 4, pp. 55-56, 59-63; 5<sup>th</sup>: chapter 5, pp. 70-73, 75-83]</b> “Property Level Pro Forma Analysis” <b>*Linneman [4<sup>th</sup>: chapter 16; 5<sup>th</sup>: chapter 18]</b> “Real Estate Exit Strategies.”
6. February 5	Topic # 4, continued. <b>Case #1 handed out</b>	
7. February 7	Topic #5: Introduction to leases and the economics of retail malls.	<b>*Linneman [4<sup>th</sup>: chapter 3; 5<sup>th</sup>: chapter 4]</b> “The Fundamentals of Commercial Leases.” OPT #6: <i>Mall Myths</i> OPT #7: <i>The Changing Design of Shopping Places</i> OPT #8: <i>The Evolution of Retailing in the United States</i>
8. February 12	Topic #6: Evaluating Pro Formas	<b>*BP #4:</b> <i>Nine Abuses Common in Pro Forma Cash Flow Projections</i> <b>*Linneman [4<sup>th</sup>: chapter 8; 5<sup>th</sup>: chapter 18]</b> “Development Pro Forma Analysis.” “OPT #5: <i>How Reliable Are Commercial Appraisals? Another Look</i> ”
9. February 12, <b>6 p.m. evening class,</b>	Guest speaker: Olivia John, Managing Director, Blackstone <b>Note that we have TWO classes on February 12.</b>	

SHDH 350		
10. February 14	Topic #7: Debt financing, land leases, hybrid structures, and partnerships	<p><b>*BP #2:</b> <i>Guide to Real Estate Capital Markets: Participating Debt and Equity</i>. [This article is a bit dry. Do your best to wade through, and don't worry about the "Parameters" sections.]</p> <p><b>*Linneman [4<sup>th</sup>: chapter 4, pp. 56-58; 5<sup>th</sup>: chapter 5, pp. 68-70]</b> "Property Level Pro Forma Analysis",.</p> <p><b>*Linneman [4<sup>th</sup>: chapter 13; 5<sup>th</sup>: chapter 15]</b> "The Use of Debt and Mortgages"</p> <p><b>*Linneman [4<sup>th</sup>: chapter 15; 5<sup>th</sup>: chapter 17]</b> "Ground Leases as a Source of Finance."</p> <p><b>*Linneman [4<sup>th</sup>: chapter 17; 5<sup>th</sup>: chapter 19]</b> "Real Estate Private Equity Funds"</p> <p>Linneman [4<sup>th</sup>: chapter 11; 5<sup>th</sup>: chapter 13] "Real Estate Bankruptcy Basics"</p> <p>Linneman, [4<sup>th</sup>: chapter 12; 5<sup>th</sup>: chapter 14] "Should You Borrow?"</p> <p>OPT #3: <i>Real Estate Private Equity Funds</i></p>
11. February 19	Topic #7, continued.	
12. February 21	Topic #8: Real estate cycles <b>Case #1, Part 1, due before 9 a.m.</b> <b>Midterm review sheet handed out</b>	<p><b>*BP #9:</b> <i>Adjustment Mechanisms in Real Estate Markets</i></p> <p><b>*BP #10:</b> <i>The Making of an Asset Class</i></p> <p><b>Linneman [4<sup>th</sup>: chapter 20; 5<sup>th</sup>: chapter 25]</b> "Real Estate Cycles"</p> <p>Linneman [4<sup>th</sup>: chapter 9; 5<sup>th</sup>: chapter 11] "Development Feasibility Analysis"</p> <p>OPT #11: <i>Superstar Cities</i></p> <p>OPT #12: <i>Will We Need More Office Space?</i></p> <p>OPT #13: <i>Living Downtown</i></p> <p>OPT #14: <i>Developer: Villain or Hero?</i></p> <p>OPT #15: <i>(When) Will We Do It Again?</i></p>
13. February 26	Catch-up.	
14. February 28	<b>Midterm Exam 1</b>	
Spring Break		
15. March 12	Topic #8: Real estate cycles, continued	
16. March 14	<b>Case #1, Part 2 due before 9 a.m.</b> <b>Case discussion</b>	
17. March 19	Topic #9: Equity securitization and the REIT market <b>Case #2 handed out</b>	<p><b>*BP #16:</b> <i>Basic Valuation of a Real Estate Investment Trust</i></p> <p><b>*Linneman [4<sup>th</sup>: chapter 18; 5<sup>th</sup>: chapter 21]</b> "REITs and Liquid Real Estate"</p> <p>OPT #17: <i>REIT Share Prices and the Declining Relative Importance of Commercial Real Estate</i></p> <p>OPT #18: <i>Liquid Real Estate</i></p>

		OPT #19: REITs as an Alternative Investment in Volatile Financial Markets
18. March 21	Topic #9: Equity securitization and the REIT market, continued.	*Linneman [4 <sup>th</sup> : chapter 10; 5 <sup>th</sup> : chapter 12] “Real Estate Company Analysis.” *BP #20: <i>UPREITs: A Vehicle for Tax Deferral and Asset Growth</i> *BP #21: <i>Forces Changing the Real Estate Industry Forever</i> *BP #22: <i>The Five Overlooked Features of the Real Estate Capital Markets</i> OPT #23: <i>REITs and Taxes</i> OPT: Linneman, Chapter 18 Supplement A: <i>The Forces Changing Real Estate Forever: Five Years Later</i>
March 26	<b>No class</b>	
March 28	<b>No class</b>	
19. April 2	Topic #10: Securitization of Debt Interests: Commercial Mortgage-Backed Securities	*BP #24: <i>How to Build a Bond</i> *BP #25: <i>The Past, Present, and Future of CMBS</i> *Linneman [4 <sup>th</sup> : chapter 14; 5 <sup>th</sup> : chapter 16] “Sources of Long- and Short-term Debt” Linneman, “Supplemental II: CMBS Case Study”
20. April 2, 6 p.m. <b>Evening class, SHDH ??</b>	Guest speaker: Carl Tash, Managing Director, Starwood Capital Group <b>Note that we have TWO classes on April 2.</b>	
21. April 4	Topic #10: Securitization of Debt Interests: Commercial Mortgage-Backed Securities, continued.	*BP #26: <i>Defaults in Securitized Real Estate Loans</i> OPT #27: <i>The Mortgage REITs: Dynamos or Duds?</i>
22. April 9	<b>Case #2 discussion. Case #3 handed out.</b>	<b>Case #2 due before 9 a.m.</b>
23. April 9, 6 p.m. <b>Evening class, SHDH ??</b>	Guest speaker: Jay Mantz, President, Rialto Capital Management <b>Note that we have TWO classes on April 9.</b>	
24. April 11	Topic #11: The rent/own decision in corporate and residential real estate.	*Linneman [4 <sup>th</sup> : chapter 19; 5 <sup>th</sup> : chapter 23] “ <b>Corporate Real Estate Decision Making</b> ” OPT #28: <i>Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions</i>
25. April 16	Topic #12: Housing Markets	*BP #29: <i>Safety in Renting</i>
April 18	<b>No class.</b>	
26. April 23	<b>Case #3 discussion</b> Hand out midterm exam review sheet.	<b>Case #3 due before 9 a.m.</b>
27. April 25	Catch-up.	



28. April 30	<b>Midterm Exam 2</b>	
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### 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.

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 place both in my mailbox in SHDH.

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 along with the assignment to my mailbox in SHDH. 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, 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. 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 rubric.

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:*

1) I 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 I will correct any size error.
- 5) Do not submit regrade requests by email.