

University of Pennsylvania  
The Wharton School

**Real Estate Finance: Investment and Analysis**  
**Fall 2014**  
**REAL/FNCE 721 – JMHH G50**

*Updated August 23, 2014*

Professor Todd Sinai  
1465 Steinberg Hall-Dietrich Hall  
email: [sinai@wharton.upenn.edu](mailto:sinai@wharton.upenn.edu)

Office Hours: Tuesday, 2:00-3:30 p.m.  
(sign up on Canvas) and by appointment  
phone: 215-898-5390

**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. 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.

*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, Third Edition*, by Linneman is required. It is available in the Bookstore. In my opinion, the Linneman book is the best one available. However, a good alternative or 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 a 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

**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:** Occasional 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. 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:

- Wednesday, October 1, 6:00-7:20 p.m. Reid Liffmann, Angelo Gordon.
- Date TBA, 6:00-7:20 p.m. Neil Shah, Hersha Hospitality.
- Monday, November 17, 6:00-7:20 p.m. Ivan Kaufman, Arbor Realty.

Plus, one **optional** but highly recommended speaker:

- Monday, November 3, 6:30-7:30 p.m. Sam Zell, Equity Group Investments.

### Cases:

**Workload:** There will be three group projects.

**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 five members, and must work with the same team on all three cases. Your group may contain members from any of my sections

of 721. It is your responsibility to find a team. 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.

**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 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 15
- Monday, December 8.

**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.

### Class evaluations:

Class evaluation questionnaires periodically will be posted on Canvas. I use these questionnaires to improve the course in subsequent years. You are awarded a participation grade based on how many questionnaires you fill out.

### Grading:

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

- Exams: 45 percent (22.5 percent each); you must pass each individually
- Cases: 45 percent (15 percent each).

- Class evaluations: 10 percent.

**Attendance:** I will not explicitly grade your attendance in the class, but I will consider superb or sub-par class participation when deciding grades. This factor could account for up to one-third of a letter grade.

**Curve:** 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 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:

**Assigned seats:** Whatever seat you choose on the *fourth* class meeting (September 10) is yours for the entire semester. Please sit there every class.

**Switching sections:** My experience has been that I need to exercise some crowd control. So:

- In general, no switching sections.
- I will allow you to switch sections three times over the course of the semester, with advance permission. Email me for the permission.
- Only three students can switch into any given section on any given day; advance permission is given on a first-come, first-served basis.
- No switching sections on exam days.

### 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. You may use an iPad or other tablet to read and annotate the class notes.

**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.

**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 (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 2:00-3:30. 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.

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

## Course Schedule

Date	Topic	Preparation
1. August 27	Topic #1: Course requirements, class overview, and overview of real estate markets	* <b>BP #1:</b> <i>Emerging Trends in Real Estate 2014</i> , chapters 1-2. Linneman, chapter 2: “What Is Real Estate?”, pp. 12-35.
2. September 3	Topic #2: Elements of real estate value: income and expenses; pro-forma setup	* <b>Linneman, chapter 4:</b> “Property Level Pro Forma Analysis”, pp. 43-55. * <b>Linneman, chapter 5:</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” Brealey and Myers, <i>Principles of Corporate Finance</i> , chapter 3: “How to Calculate Present Values.”
3. September 8	Topic #2, continued: Cap rates; Property-level risk	* <b>Linneman, chapter 7:</b> “The Use and Selection of Cap Rates”
4. September 10	Topic #3: Mortgages and Debt financing <b>Choose your seats today! (Get to class early.)</b>	* <b>Linneman, chapter 4:</b> “Property Level Pro Forma Analysis”, pp. 56-58. * <b>Linneman, chapter 13:</b> “The Use of Debt and Mortgages” Linneman, chapter 11: “Real Estate Bankruptcy Basics” Linneman, chapter 12: “Should You Borrow?” Linneman, “Prerequisite III: Amortization Fundamentals”
5. September 15	Topic #3, continued: Debt financing, land leases, hybrid structures, and partnerships	* <b>BP #3:</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.] * <b>Linneman, Chapter 15:</b> “Ground Leases as a Source of Finance.” * <b>Linneman, chapter 17:</b> “Real Estate Private Equity Funds” OPT #5: <i>Real Estate Private Equity Funds</i>
6. September 17	Topic #4: Evaluating Pro Formas <b>Case #1 handed out</b>	* <b>BP #2:</b> <i>Nine Abuses Common in Pro Forma Cash Flow Projections</i> * <b>Linneman, chapter 8:</b> “Development Pro Forma Analysis” OPT #1: <i>How Reliable Are Commercial Appraisals? Another Look</i>
7. September 22	Topic #5: Taxes and Real Estate	* <b>Linneman, chapter 4:</b> “Property Level Pro Forma Analysis”, pp. 55-56, 59-63. * <b>Linneman, chapter 16:</b> “Real Estate Exit Strategies.”
8. September 24	Topic #5: Taxes and Real Estate, continued	

9. September 29	Topic #6: Introduction to leases and the economics of retail malls	* <b>Linneman, chapter 3:</b> “The Fundamentals of Commercial Leases.” OPT #2: <i>Mall Myths</i> OPT #3: <i>The Changing Design of Shopping Places</i> OPT #4: <i>The Evolution of Retailing in the United States</i>
10. October 1	Topic #6: Introduction to leases and the economics of retail malls, continued.	
11. October 1, <b>6:00 p.m. – 7:20 p.m.</b>	<b>Monday evening guest lecture. Reid Liffmann, Angelo Gordon</b>	
12. October 6	Case #1 discussion	<b>Case #1 due before 10 a.m.</b>
13. October 8	Topic #7: Real estate cycles Hand out midterm exam review sheet	* <b>BP #4:</b> <i>Adjustment Mechanisms in Real Estate Markets</i> * <b>BP #5:</b> <i>The Making of an Asset Class</i> <b>Linneman, chapter 20:</b> “Real Estate Cycles” Linneman, chapter 9: “Development Feasibility Analysis” OPT #6: <i>Superstar Cities</i> OPT #7: <i>Will We Need More Office Space?</i> OPT #8: <i>Living Downtown</i> OPT #9: <i>Developer: Villain or Hero?</i> OPT #10: <i>(When) Will We Do It Again?</i>
<b>Fall Break</b>		
October 13	No class.	
14. October 15	<b>Midterm Exam 1</b>	
<b>End of quarter 1/start of quarter 2.</b>		
15. October 20	Topic #8: Securitization of Debt Interests: Commercial Mortgage-Backed Securities <b>Case #2 handed out.</b>	* <b>BP #6:</b> <i>How to Build a Bond</i> * <b>BP #7:</b> <i>The Past, Present, and Future of CMBS</i> * <b>Linneman, chapter 14:</b> “Commercial Mortgage Backed Securities Basics” Linneman, “Supplemental II: A Look at a Real CMBS Issue”
16. October 21, <b>6:00 p.m. – 7:20 p.m.</b>	<b>Tentative Tuesday evening guest lecture. Neil Shah, Hersha Hospitality</b>	
17. October 22	Topic #8: Securitization of Debt Interests: Commercial Mortgage-Backed Securities, continued	* <b>BP #8:</b> <i>Defaults in Securitized Real Estate Loans</i> OPT #11: <i>The Mortgage REITs: Dynamos or Duds?</i>
18. October 27	Topic #8: Securitization of Debt Interests: Commercial Mortgage-Backed Securities, continued	

October 29	No class – Zell/Lurie Real Estate Center Fall Meeting today.	
19. November 3	<b>Case #2 discussion</b>	<b>Case #2 due before 10 a.m.</b>
November 3, <b>6:30 p.m. – 7:30 p.m.</b>	<b>Optional Monday evening guest lecture. Sam Zell, Equity Group Investments</b>	
20. November 5	Topic #9: Equity securitization and the REIT market	<p><b>*BP #9:</b> <i>Basic Valuation of a Real Estate Investment Trust</i></p> <p><b>*Linneman, chapter 18:</b> “REITs and Liquid Real Estate”</p> <p>OPT #12: <i>REIT Share Prices and the Declining Relative Importance of Commercial Real Estate</i></p> <p>OPT #13: <i>Liquid Real Estate</i></p> <p>OPT #14: <i>REITs as an Alternative Investment in Volatile Financial Markets</i></p>
21. November 10	Topic #9: Equity securitization and the REIT market, continued. <b>Case #3 handed out</b>	<p><b>*Linneman, chapter 10:</b> “Real Estate Company Analysis.”</p> <p><b>*BP #10:</b> <i>UPREITs: A Vehicle for Tax Deferral and Asset Growth</i></p> <p><b>*BP #11:</b> <i>Forces Changing the Real Estate Industry Forever</i></p> <p><b>*BP #12:</b> <i>The Five Overlooked Features of the Real Estate Capital Markets</i></p> <p>OPT #15: <i>REITs and Taxes</i></p> <p>OPT: <i>Linneman, Chapter 18 Supplement A: The Forces Changing Real Estate Forever: Five Years Later</i></p>
22. November 12	Topic #10: The rent/own decision in corporate real estate.	<b>*Linneman, chapter 19:</b> “Corporate Real Estate Decision Making”
November 17	No class at the regular time – evening guest lecture.	
23. November 17 <b>6:00 p.m. – 7:15 p.m.</b>	<b>Monday evening guest lecture. Ivan Kaufman, Arbor Realty</b>	
24. November 19	Topic #10: The rent/own decision in corporate real estate, continued	
25. November 24	<b>Case #3 discussion</b>	<b>Case #3 due before 10 a.m.</b>
November 26	<i>No class – Friday schedule due to Thanksgiving</i>	
26. December 1	Topic #11: Return and Risk in Housing Markets (with a parallel to commercial real estate). Hand out midterm exam review sheet.	OPT #16: <i>Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions</i>



27. December 3	Topic #11: Return and Risk in Housing Markets, continued.	<b>*BP #13:</b> <i>Safety in Renting</i>
28. December 8	<b>Midterm Exam 2</b>	

---

### 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.