

University of Pennsylvania  
The Wharton School

**Real Estate Investment: Analysis and Financing  
REAL/FNCE 209/721**

**Fall 2019**

**TuTh 10.30-12.00 pm (209-401), JMHH G65**

**TuTh 1.30-3.00 pm (209-402), JMHH 260**

**TuTh 3.00-4.30 pm (721-405), JMHH 260**

**Preliminary and subject to change**

**Last updated: August 19 2019**

Professor Harari  
Vance 428  
Email: [harari@wharton.upenn.edu](mailto:harari@wharton.upenn.edu)

Office Hours: Wednesday 1.30-3.00 pm  
(unless otherwise noted on Canvas)

***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. We delve more deeply into a handful of aspects of the real estate field when they are particularly relevant or when the example provides a more general insight. Higher-level classes in the Real Estate Department examine many of the topics from this class in more detail.

***Prerequisites:***

Finance 100 is a prerequisite for enrollment for undergraduate students. Finance 611 (or 612) is a prerequisite for enrollment for MBA students. In certain instances, the requirement may be waived for students with equivalent coursework in finance.

*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.

**Course Materials:**

The **required textbook** for the course is *Real Estate Finance and Investments, Fifth Edition*, by Peter Linneman and Bruce Kirsch. It is [available at the Penn 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).

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

The slides used in class are made available on Canvas in advance. I recommend downloading them or printing them out before class, and using them as a basis for taking notes. After class, I will post an updated version of each slide deck that includes additional “Appendix slides” at the end, with solutions to in-class exercises and suggested answers / discussion points for the questions discussed in class.

Please check **Canvas** regularly for updates relating to the class and additional materials:

- Copies of the slides used in class
- Updates to the class notes, when necessary
- Sample Excel spreadsheets from the in-class examples
- Practice problems and old exams (with solutions)
- Supplemental class material and reading
- Case materials (when available)
- Announcements, updates, and clarifications
- Discussion threads

Non-Wharton students will need to apply for a Wharton account in order to get access to Canvas at <http://accounts.wharton.upenn.edu/>.

**Practice problems** and **old exams** are a fundamental part of the class. They are not turned in nor graded, but they are essential to prepare for the exams. 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. The TAs will hold *optional review sessions* throughout the semester (dates will be announced on Canvas) in which they will go over the problem sets and old exams.

You should have a **financial calculator** capable of computing annuities, present values, and IRR. You will need it for exams and problem sets. Any calculator able to perform the above functions will do, but we recommend and offer support for the HP 10b11+. Many of you probably have such a calculator from prior finance courses. You can also borrow a calculator for the semester from Lippincott Library (contact Cynthia Cronin-Kardon, [croninkc@wharton.upenn.edu](mailto:croninkc@wharton.upenn.edu)).

Please familiarize yourself with the relevant calculator functions well in advance of the exams. In order to finish the exam on time you will have to be able to compute annuities, present values and IRR quickly. There are many on-line tutorials for the HP 10b11+ calculator and the TAs are also available

to help you learn how your calculator works.

### ***Classroom Policies and Expectations:***

- **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 a component of class participation, which counts towards your grade (see grading policies below). Attendance is required both for regular classes and for guest lectures (see below). **You have two excused absences throughout the semester.**
- I expect you to come to class prepared, i.e. up to speed with the material covered in class thusfar and having completed the *required* readings. I expect you to **participate** in class discussions.
- 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.
- **Unless otherwise announced, you may not use computers, smart phones, etc..** The exception is for medical reasons. Tablets are allowed for note taking, provided the screen is flat on the table so as not to distract other students and my lecturing.
- The seat you choose on the fourth class meeting (September 5) is yours for the entire semester. Please sit there every class, except during exams, when I will randomly assign new seats.
- Please display **name tents**.
- Please refer to the Wharton Program's Policy on Secular & Religious Holidays for information specifically relating to absences on account of religious observance.

### ***Guest Speakers:***

Guest speakers are scheduled outside of normal class time, as listed on the schedule below. These sessions are **required** material. **Attendance is required unless you have a valid conflict.** Please notify me by email if you have a conflict. I will circulate a sign-up sheet during each of the lectures – please remember to sign it. 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 for this semester are:

- Kimberly Sherman Stamler, Related Beal, Monday October 14, 4.30-5.30 pm, room SHDH351
- Ritson Ferguson, CBRE Global Investors, Monday November 4, 4.30-5.30 pm, room TBA
- Eric Schiela, Rubenstein Partners, Wednesday November 13, 4.30-5.30 pm, room TBA.

One regular lecture is canceled for each guest lecture. These are indicated in the syllabus below and are not in the same week as the guest lecture.

### ***Grading:***

The course grade will be based on

- **two midterm exams** (25 % each)

- **three cases** (16% for case 1, 12% for case 2 and 3 respectively)
- **ten short quizzes** (10% in total)
- **class participation**: can contribute to up to a third of a letter grade (e.g. bump you up from an A- to an A).

Details on each are provided below.

209 and 721 sections will be curved separately. For 209, I plan to curve pooling together the two sections.

### **Exams:**

The two midterm exams will be held in regularly scheduled class time, one on **Tuesday, October 8** and the other on **Tuesday, December 3**. 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, the class notes, the cases, the practice problems, and the required readings.

The exams are closed-book, but you are allowed to bring one 8.5 x 11" **cheat sheet** of notes (double-sided) into each exam. You will need to **bring a financial calculator** to the exams (see above). You will not be allowed to use a computer or tablet. In addition, **seats will be randomly assigned on exam days**.

Exams must be taken at the assigned time. **If you cannot attend class on these dates, please do not take the class.** Make-up exams will not be administered except at the request of the Undergraduate Vice Dean's office (undergraduates) or a Wharton Dean's Office-approved excuse (MBAs). Notes from Student Health should be taken to the Vice Dean's office for endorsement by your advisor.

Both exams must be passed in order to receive a passing grade for the course.

The regrade policy is appended to the syllabus.

### **Cases:**

There will be three cases, that are for the most part group-based:

- Case 1 will consist of part I, which is an individual, pass/fail quantitative modelling assignment, and part II, which involves writing a memo as a group.
- Case 2 will consist of part I (quantitative analysis) and part II (investment recommendation) and will be entirely group-based.
- Case 3 will be entirely group-based.

For group-based assignments, you will choose your own group of **three to five members**. For 209 students, groups may be formed with students from any of the two sections that I teach. **Please register your team** by signing up on Canvas **before September 19**. If you cannot find a team, I can facilitate the process by letting you know which teams have few members or if someone else is looking for a team. Unless exceptional circumstances arise, you should stick with the same team for the entire course.

**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*. In your email please indicate the offending group member, the nature of the problem, and

steps you have taken to mitigate it. 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.

You may discuss the cases with other students and groups; however, **each student must separately prepare their own case materials for the individual assignments and each group should prepare their own write-ups for the group-based assignments.** Violations by any team member will result in the entire team getting a zero on the assignment.

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.**

### *Quizzes:*

There will be a number of 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 should be completed before class. **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. I will drop the 3 quizzes with the lowest score.**

**Quizzes should be taken individually.** You may discuss the contents of the required readings with your class mates, 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 optional, non-graded questions that are meant to help you prepare for the ensuing class discussions.

### *Class participation:*

Sub-par participation includes arriving late and missing classes beyond your two excused absences. I take attendance by circulating a sign-up sheet at the beginning of each class.

### *Getting help:*

- **Contact me.** I am happy to help students understand any material they are having difficulty with. I will post on Canvas when I have availability for office hours, **typically Wednesdays 1.30-3.00 pm.** If you plan to come to my scheduled office hours, **please sign up through Canvas.** Contact a TA if you have trouble signing up. If you can't make it to my posted office hours, please note that I also take appointments and answer questions by email.
- **Get help from your TAs.**
  - Spencer Topf ([topf@wharton.upenn.edu](mailto:topf@wharton.upenn.edu)), Angelica Zhou ([angezhou@wharton.upenn.edu](mailto:angezhou@wharton.upenn.edu)), and Andrew Atkins ([aeatkins@wharton.upenn.edu](mailto:aeatkins@wharton.upenn.edu)) will each be your "go-to" TA for cases 1, 2, and 3, respectively. They will hold office hours before a case is due. These will be announced on Canvas before each case is handed out.
  - Jacob Bass ([basjacob@wharton.upenn.edu](mailto:basjacob@wharton.upenn.edu)) will be your TA for general help with the

class and review sessions.

***Disclaimers:***

- The class **schedule** is an ambitious goal and may not reflect the actual timing, or even sequence, of the material covered.
- It is the policy of the Real Estate Department that students who take the class **pass/fail** cannot count the course toward the real estate concentration. While non-majors can take the course pass/fail, grades will not be “uncovered” if a student later decides to become a real estate concentrator.

***Honor code:***

You may verbally discuss the cases and quizzes with other students who are currently enrolled in FNCE/REAL 209/721. 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 obtain assistance from former students** or current or past employees of firms involved with the cases.

You also may not provide such assistance once you are no longer enrolled in this class. **You may not share your written or Excel case materials** with anyone other than the instructor and TAs at any point. **You may not circulate suggested solutions to the cases.**

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. **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.**

***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 are prohibited from being paid for taking or transferring their class notes without my express written permission.

**Course Schedule**

Required readings are marked **with an asterisk (\*)**. The other readings are optional.

	<b>Date</b>	<b>Topic</b>	<b>Readings / Assignments</b>
1	Tuesday, August 27, 2019	Topic #1: Course requirements, class overview, and overview of real estate markets.	
2	Thursday, August 29, 2019	Topic #2: Elements of real estate value: pro-forma setup.	<b>*Linneman Kirsch, Chapter 5: “Property Level Pro Forma Analysis”, pp. 55-69</b>
3	Tuesday, September 3, 2019	Topic #2, continued: Cap rates.	<b>*Linneman Kirsch, Prerequisite I: “The basics of Discounted Cash Flow and Net Present Value Analyses”, pp. 364-373</b>  <b>*Linneman Kirsch, Prerequisite II: “Internal rate of return”, pp. 378-383.</b> (the discussion of cap rates is optional – we’ll do this in class)  Linneman, chapter 9: “The Use and Selection of Cap Rates”
4	Thursday, September 5, 2019	Topic #3: Debt financing and simple mortgages.  <b>Choose your seats today!</b>  <b>Case 1 handed out in class (no electronic copies available).</b>	<b>*Linneman Kirsch, Chapter 15: “The Use of Debt and Mortgages”, pp. 225-237</b>  <b>*Linneman Kirsch, “Prerequisite III: Amortization Fundamentals,” pp. 384-96</b>
	Tuesday, September 10, 2019	<b>No class.</b> (Canceled in lieu of 1 <sup>st</sup> guest lecture)	
5	Thursday, September 12, 2019	Topic #3, continued  Topic #4: Taxes and Real Estate.	<b>* Linneman Kirsch, Chapter 5: “Property Level Pro Forma Analysis”, pp. 70-76</b>
6	Tuesday, September 17, 2019	Topic #4, continued  Topic #5: Evaluating pro formas and property-level risk and return.	<b>* Pwc, “Tax Reform and Real Estate: Impact of the Tax Cuts and Jobs Act on Real Estate” (on Canvas)</b>

7	Thursday, September 19, 2019	Topic #5: continued.  <b>Sign up for a case team.</b>	* <b>Massachusetts Multifamily pro forma handout (on Canvas)</b>  Linneman-Kirsch, Chapter 10, "Development pro forma analysis", 165-177.
	Monday, September 23, 2019	<b>Case 1 part I (individual assignment) due 10.00 am today.</b> (No class, no discussion)	
8	Tuesday, September 24, 2019	Topic #6: Financing structures: hybrid debt, ground leases, partnerships  <b>Case 1 part I suggested solutions handed out in class (no electronic copies available)</b>	* <b>Arnold and Oharenko, "Guide to Real Estate Capital Markets: Participating Debt and Equity", pp. 34-45 (Study.net).</b>  * <b>Linneman Kirsch, chapter 17: "Ground Leases as a Source of Finance", pp. 249-255</b>
9	Thursday, September 26, 2019	Topic #6, continued  Topic #7: Leases and retail malls	* <b>Maira, "<a href="#">Understanding Real Estate Joint Ventures</a>" (on Canvas)</b>  Linneman Kirsch, chapter 19: "Real Estate Private Equity Funds"
10	Tuesday, October 1, 2019	Topic #7, continued	* <b>Linneman Kirsch, chapter 4: "The Fundamentals of Commercial Leases", pp. 45-54</b>  * <b>Mulholland, "<a href="#">Mall Owners, Retailers Clash on Avalanche of Online Returns</a>" (on Canvas)</b>
	Wednesday, October 2, 2019	<b>Case 1 part II due 10.00 am today</b> (No class, no discussion)	
11	Thursday, October 3, 2019	<b>Case 1 class discussion</b>	
12	Tuesday, October 8, 2019	<b>1<sup>st</sup> MIDTERM EXAM</b>	
	Thursday, October 10, 2019	<b>No class - Fall term break.</b>	
	Monday, October 14, 2019	<b>Guest lecture Kimberly Sherman Stamler 4.30-5.30 pm</b>	



		Room SHDH351	
13	Tuesday, October 15, 2019	Topic #8: REITs.  <b>Case 2 handed out in class (no electronic copies available)</b>	* <b>Linneman Kirsch, chapter 21: “REITs and illiquid real estate”, pp. 298-308.</b>  * <b>BofAML REIT Primer, 6th ed., pp. 1-7 and 23-24 (on Canvas)</b>
14	Thursday, October 17, 2019	Topic #8, continued.	* <b>BofAML REIT Primer, 6th ed., pp. 23-30 and 33-34 (on Canvas)</b> [the rest of the report is optional]
15	Tuesday, October 22, 2019	Topic #9: CMBS.	* <b>Linneman Kirsch, chapter 16: “Sources of Long- and Short-Term Debt”, pp. 238-248</b>
16	Thursday, October 24, 2019	Topic #9, continued.	* <b>Di Salvo Johnston, <a href="#">“Skin in the Game in the CMBS Market”</a> (on Canvas)</b>
	Friday, October 25, 2019	<b>Zell/Lurie Fall meeting</b> (recommended, not required)	
	Monday, October 28, 2019	<b>Case 2 part I (individual assignment) due 10.00 am today.</b>  (No class, no discussion)	
17	Tuesday, October 29, 2019	Topic #10: Cycles  <b>Case 2 part I suggested solutions handed out in class (no electronic copies available)</b>	* <b>Ferré-Sadurní et al., <a href="#">“Landmark Deal Reached on Rent Protections for Tenants in N.Y.”</a> (on Canvas)</b>  Smith, “Adjustment Mechanisms in Real Estate” (Bulk pack).
18	Thursday, October 31	Topic #10, continued	* <b>Corgel, <a href="#">“Is Overbuilding Risk Declining? Evidence From Hotel Markets”</a>.</b>  Linneman Kirsch, chapter 25: “Real Estate Cycles”, pp 344-358.
	Monday, November 4 2019	<b>Case 2 part II due 10.00 am today.</b> (No class, no discussion)	

	Monday, November 4, 2019	<b>Guest lecture Ritson Ferguson 4.30-5.30 pm Room TBA</b>	
19	Tuesday, November 5, 2019	<b>Case 2 class discussion.  Case 3 handed out in class (no electronic copies available)</b>	
20	Thursday, November 7, 2019	Topic #11: Residential real estate usage and housing markets	* <b>Falcone</b> , <a href="#"><u>“Why Buying a Home Is a Smart Investment for Millennials”</u></a> (on Canvas).  * <b>Olick</b> , <a href="#"><u>“It’s better to rent than to buy in today’s housing market”</u></a> (on Canvas)
21	Tuesday, November 12, 2019	Topic #11, continued	* <b>Glaeser and Sinai</b> , <a href="#"><u>“Postmortem for a Housing Crash”</u></a> .
	Wednesday, November 13, 2019	<b>Guest lecture Eric Schiela 4.30-5.30 pm Room TBA</b>	
22	Thursday, November 14, 2019	Topic #12: Corporate real estate usage	* <b>Raice</b> , <a href="#"><u>“Zynga to Spend \$228 Million on San Francisco Property”</u></a> , (on Canvas)  * <b>Takahashi</b> , <a href="#"><u>“Zynga sells its SF headquarters for \$600 million”</u></a> , (on Canvas)  * <b>Arata</b> , <a href="#"><u>“How Coworking is Shaping the Office Market”</u></a> , (on Canvas)  Linneman, chapter 23: “Corporate Real Estate Decision Making”, pp. 320-333
23	Tuesday, November 19, 2019	Topic 13: appraisals and other valuation approaches / Exam review	* <b>Keys</b> , <a href="#"><u>“Why Automation Is Killing the Property Appraisal Business”</u></a> , podcast + article on Canvas
	Wednesday, November 20, 2019	<b>Case 3 due 10.00 am today. (No class, no discussion)</b>	
24	Thursday, November 21, 2019	<b>Case 3 class discussion</b>	

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	Tuesday, November 26, 2019	<b>No class.</b> (Canceled in lieu of 2 <sup>nd</sup> guest lecture)	
	Thursday, November 28, 2019	<b>No class.</b> (Thanksgiving)	
25	Tuesday, December 3, 2019	<b>2<sup>nd</sup> MIDTERM EXAM</b>	
	Thursday, December 5, 2019	<b>No class.</b> (Canceled in lieu of 3 <sup>rd</sup> guest lecture)	

**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. I will announce in class and on Canvas when exams are available to be picked up. Typically, graded exams can be retrieved at the front desk of the Real Estate Suite. I scan all graded exams before releasing them.
- **Regrade requests should be submitted as hard copies, not by email.** Please submit the original copy of your exam along with a written explanation of the alleged grading error to my mailbox in Vance XXX.
- If you request a regrade, **the entire assignment will be reviewed. This means that your final grade may go up or down.** Errors tend to be random and offset each other. It would be unfair to the rest of the class to correct only grading errors that reduce your grade.
- Regrade requests will be accepted for **three weeks following the return of an assignment.**
- **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.
- 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 you believe that we inadvertently deducted points multiple times for the same error, please submit a regrade request explaining this.