

University of Pennsylvania  
The Wharton School

**Real Estate Investments  
REAL/FNCE 209/721**

<https://canvas.upenn.edu/courses/1532333>

**Fall 2020**

**TuTh 10.30 am - 12.00 pm (209-401)**

**TuTh 1.30 pm - 3.00 pm (721-405)**

**TuTh 3.00pm - 4.30 pm (209-402)**

**Subject to change**

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Professor Harari  
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Office Hours: Wednesday 1.30-3.00 pm  
(unless otherwise noted on Canvas)  
and by appointment.

***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:**

There is no required textbook for the course. All **readings** are available on Canvas or can be accessed on line.

Some readings are required and students are expected to cover them before class. Many of these readings are necessary to complete problem set assignments that are due before class (see below).

Other readings are optional, i.e. recommended but not required.

Excerpts from the Linneman Kirsch textbook are available under "[Course Materials@Penn Libraries](#)". Other readings are in the "[Files>Readings](#)" folder or linked to in the syllabus. One of the optional readings is available on Canvas via [Study.net](#).

For students interested in learning more, we recommend the textbook *Real Estate Finance and Investments*, by Linneman and Kirsch, from which many of the required readings are drawn. Additional textbooks 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).

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.

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.

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.

These slides are a not designed to be a substitute for attending class.

**Required questions** are due before class on the dates indicated in the calendar and should be submitted via Canvas.

These questions are meant to help you think about a topic before we cover it in class and/or in preparation for a class discussion. Some of these questions are qualitative and don't have a right or wrong answer. Other questions are quantitative and have a correct answer, but I do not expect you to get it right – the goal is to make you think about a particular issue so that you can make the most out of class.

You should submit your answers to these questions via Canvas by 6 pm the day before class. You may discuss the questions with other students, but each student should submit their own answer. The TAs and I will review your answers and you may be warm called to expand on them in class. Your submissions will be graded as complete ("thumbs up") or incomplete ("thumbs down"). You will get a thumbs up if you have made an effort to answer the question, even if the answer is not correct. You will get a thumbs down if you do not submit an answer or if your answer indicates that you have put minimal or no effort in working through the question. You have two excuses throughout the semester for not submitting a question, to allow for logistical issues or delays in joining the class.

Required questions are posted under “Assignments”.

**Practice problems** are meant to be done after class to consolidate your understanding of the material and are good practice for the exam. These problems are not turned in and not graded, but they are *essential* to prepare for the exams. Solutions are provided. The TAs will hold *optional* review sessions throughout the semester (dates will be announced on Canvas) in which they will go over practice problems as well as old exams.

Practice problems are posted under “[Files>Practice problems](#)”.

Problem sets and exams include quantitative questions that require computing annuities, present values, and IRR. It is your call whether you would like to use a **financial calculator** or software like **Excel**. A financial calculator can come handy for quick calculations, whereas Excel is more suitable for more complex modelling exercises.

If you would like to use a calculator, 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. Otherwise, there are plenty of apps such as <http://www.fncalculator.com/financialcalculator?type=tvmCalculator>.

Whichever calculator you decide to use, please familiarize yourself with the relevant 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.

### **Cases:**

There will be four group-based cases, each of which will include a quantitative component (financial modelling) and a qualitative component.

You will choose your own case team 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 under the “team sign-up” section **before September 19**. It is your responsibility to find a team. Unless exceptional circumstances arise, you should stick with the same team for the entire course. 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 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 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.**

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

- [Class recordings](#)
- 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 assignments
- 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/>.

***“Classroom” Policies and Expectations:***

- I expect you to **attend** all regular classes and guest lectures. Please attend your section. If you need to temporarily switch to another section due to a conflict, please let me know.
- I expect you to come to class **prepared**, i.e. up to speed with the material covered in class thus far and having completed the required readings and questions. Please be ready to comment on or discuss the class material.
- In order to make virtual classes an engaging and inclusive experience for all class participants, I may **warm call** students throughout the course. The TA or I may email individual students before class to let them know that they will be called upon during class. In particular students will be asked to expound on their answers to cases or required questions.
- Classes will be delivered live on Zoom. You can find the live link and also view class recordings afterwards from Canvas. Please adhere to the following **Zoom etiquette**:
  - Stay muted throughout the class unless you are ready to talk.
  - If your bandwidth allows, you are encouraged to have your video on. Seeing students helps me connect with the class and makes for a more lively class experience.
  - Questions and comments are always welcome and help us make a more engaging class. If you want to ask a question, please use the “raised hand” function on Zoom and be ready to be called. You can unmute yourself pushing the space bar. If your bandwidth does not allow you to speak, you are welcome to use the chat. I will take regular breaks to monitor the chat and take questions.
  - I will sometimes assign students to breakout rooms to discuss a topic or go over an exercise together.

- Be a **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.
- **Technology issues** may sometimes come up. Please be patient with me and your fellow classmates. Contact one of the TAs if you need help finding material on Canvas.

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

Guest speakers are scheduled outside of normal class time, as listed on the schedule below. These sessions are required material.

There will be three guest lectures for this semester – dates and speakers TBD.

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** (20 % each)
- **four cases** (15% each)
- **class participation**: can contribute to up to a third of a letter grade (e.g. bump you up from an A- to an A) and is based on submissions to required questions, participation to class discussions, and attendance.

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

### ***Exams:***

The two midterm exams will be held in regularly scheduled class time, one on **Tuesday, October 20** and the other on **Tuesday, December 8**. 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 will be administered on Canvas. Exams are open book and should be taken individually. You may not communicate with other students during the exam. I expect you to abide to the honor code (see below) and **I will take allegations of cheating very seriously**.

Exams must be taken at the assigned time. 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).

Both exams must be passed in order to receive a passing grade for the course. The regrade policy is appended to the syllabus.

**Getting help:**

**Contact me.** I am happy to help students understand any material they are having difficulty with either by email or at office hours.

Office hours will be held via Zoom on the link provided on Canvas. I will post on Canvas when I have availability, **typically Wednesdays 1.30-3.00 pm.**

If you plan to attend office hours and would like to reserve a specific time slot just for yourself or you and your case team, **please sign up through Canvas.** I will also hold “drop-in” office hours, where I will be in a Zoom room and anyone from the class can join – this is the equivalent of having my office door open.

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.** There are four TAs who can help you with the course material.

For each of the cases there will be a dedicated TA who will hold office hours and answer your queries by email before the due date. TAs will also hold recitations throughout the semester. For help with course content other than cases (e.g. problem sets, reviewing for exams, accessing materials on Canvas etc) please contact the TAs responsible for that particular topic, as indicated below.

	Case	Topics
Maria Luz Amusategui Garcia Peri, mamusa@wharton.upenn.edu	#1 The Plaza at Cherry Hill	RE value, Taxes
Jacob Morello, jtmore@wharton.upenn.edu	#2 The GSA building	Financing, Appraisals
Jamie Wang, jamwa@wharton.upenn.edu	#3 REIT	REITs, CMBS
Aditi Kamat, aditik@wharton.upenn.edu	#4 Student housing in Austin	Cycles, RE usage

**Disclaimers:**

- The class **schedule** is an ambitious goal and may not reflect the actual timing, or even sequence, of the material covered.
- **For 721 students only:** 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 discuss the cases and questions with other students who are currently enrolled in FNCE/REAL 209/721. Each group must separately prepare their own case materials and write-ups for the 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.

**Last but not least:**

This course is being taught in the midst of a global pandemic. **I am deeply aware of and sympathetic to the challenges that students are facing both in and out of the classroom**, and students should feel free to reach out to discuss any issues. My goal is to make the course as engaging as possible, and will need everyone's help to make that happen in the virtual classroom. I will maintain the highest standards, while of course allowing for flexibility given the circumstances. I welcome any comments on how to improve the course. Above all else, **please be kind to one another.**

**Course Schedule**

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

Required questions (RQ) are provided in *italics*.

	<b>Date</b>	<b>Topic</b>	<b>Readings / Assignments</b>
1	Tue, Sep 1	Class overview	
2	Thu, Sep 3	Real estate value: pro-forma setup.  Case 1 handed out.	*Linneman Kirsch, Chapter 5: "Property Level Pro Forma Analysis", part I, pp. 55-69
3	Tue, Sep 8	Real estate value, cont.: Leases  Sign up for a case team.	Refresher: Linneman Kirsch, Prerequisite I: "The basics of Discounted Cash Flow and Net Present Value Analyses", pp. 364-377.  Refresher: Linneman Kirsch, Prerequisite II: "Internal rate of return", pp. 378-383 (skip the discussion of cap rates - we'll do this in class).  * Linneman Kirsch, chapter 4: "The Fundamentals of Commercial Leases", pp. 45-54  <i>Required Question (RQ) 1: Retail leases.</i>
4	Thu, Sep 10	Real estate value, cont.: leases; property level risk and return.	* <a href="#">Cornfield, "Leases are getting shorter and rents are dropping with U.S. Office Market in Turmoil"</a>  <i>RQ 2: Sensitivity analyses.</i>
5	Tue, Sep 15	Real estate value, cont.: cap rates; evaluating pro formas.	* Massachusetts Multifamily pro forma handout (on Canvas) Linneman, chapter 9: "The Use and Selection of Cap Rates", pp. 120-133.  <i>RQ 3: Evaluating the MA Multifamily pro forma.</i>
	Thu, Sep 17	No class, canceled in lieu of guest lecture.	
6	Tue, Sep 22	Case # 1 due at 09.00 am today. Case #1 class discussion. Case #2 handed out.	

7	Thu, Sep 24	Financing: mortgages, debt in the pro forma.	*Linneman Kirsch, "Prerequisite III: Amortization Fundamentals," pp. 384-96 *Linneman Kirsch, Chapter 15: "The Use of Debt and Mortgages": simple mortgages, pp. 225-233  <i>RQ 4: Mortgage math refresher.</i>
8	Tue, Sep 29	Financing, cont.: construction draws, refinancing, risks and reward of leverage.	*Linneman Kirsch, Chapter 15: "The Use of Debt and Mortgages": refinancing, pp. 233-236  <i>RQ 5: Refinancing.</i>
9	Thu, Oct 1	Financing, cont.: hybrid debt, ground leases, partnerships.  Note: no Fall break this year	* Linneman Kirsch, chapter 17: "Ground Leases as a Source of Finance", pp. 249-255 * Maira, "Understanding Real Estate Joint Ventures" (on Canvas)  <i>RQ 6: Hybrid debt.</i>
10	Tue, Oct 6	Taxes.	* Linneman Kirsch, Chapter 5: "Property Level Pro Forma Analysis": taxes, pp. 70-76 * <a href="#">Sullivan, "How Loopholes Help Trump and Other Real Estate Moguls Avoid Taxes." (on Canvas)</a>  <i>No required question today.</i>
11	Thu, Oct 8	Taxes, cont..  Appraisals and other valuation approaches.	<i>RQ 7: Getting to the ATCF.</i>  * <a href="#">Keys, "Why Automation Is Killing the Property Appraisal Business"</a> , podcast + article on Canvas
	Mon, Oct 12	Case #2 due 09.00 am today. (No class, no discussion)	
12	Tue, Oct 13	Case #2 case discussion.	
13	Thu, Oct 15	Appraisals and other valuation approaches, cont.. Midterm review.	
14	Tue, Oct 20	Midterm	

15	Thu, Oct 22	REITs. Case #3 handed out.	BofAML REIT Primer, 6th ed., pp. 1-7 and 23-24 (on Canvas) * <a href="#">Bohjalian and Cheigh, "Buying the REIT Recovery in a Dislocated Market"</a> * <a href="#">Green Street Advisors, "High Priced ≠ Overpriced."</a>  <i>RQ 8: REIT valuation</i>
16	Tue, Oct 27	REITs, cont..	* <a href="#">Thomas, "Bankrupted JC Penney plans to spin its properties into separate real estate company"</a> . * <a href="#">Brewer, "REIT Investors Need to Pay Attention to This Scary Lawsuit."</a>  <i>RQ 9: Should you become a REIT?</i>
17	Thu, Oct 29	CMBS.	* <a href="#">Cibelli, Lord Abbett Investment Brief: Commercial Mortgage-Backed Securities (CMBS), 2017.</a>  <i>No required question today.</i>
18	Tue, Nov 3	CMBS, cont..	Di Salvo Johnston, "Skin in the Game in the CMBS Market" (on Canvas)  <i>RQ 10: CMBS warehousing risk.</i>
	Wed, Nov 4	Case #3 due 09.00 am today. (No class, no discussion)	
19	Thu, Nov 5	Case #3 discussion Case #4 handed out today.	
20	Tue, Nov 10	Cycles.	Smith, "Adjustment Mechanisms in Real Estate" (Study.net bulk pack).  <i>No required question today.</i>
21	Thu, Nov 12	Cycles, cont..	* <a href="#">Chinchilla, "Philly City Council Votes to Extend Eviction Ban as Part of Emergency Aid for Renters"</a> .

			<i>RQ 11: Demand and supply analysis of COVID responses.</i>
22	Tue, Nov 17	RE usage: residential.	<p>* <a href="#">Falcone, "Why Buying a Home Is a Smart Investment for Millennials" (on Canvas).</a></p> <p>* <a href="#">Olick, "It's better to rent than to buy in today's housing market" (on Canvas)</a></p> <p><i>RQ 12: Should you buy or rent?</i></p>
	Wed, Nov 18	Case #4 due 09.00 am today. (No class, no discussion)	
23	Thu, Nov 19	Case # 4 case discussion.	
24	Tue, Nov 24	Re usage, cont.: corporate	<p>* <a href="#">Raice, "Zynga to Spend \$228 Million on San Francisco Property", (on Canvas)</a></p> <p>* <a href="#">Takahashi, "Zynga sells its SF headquarters for \$600 million" , (on Canvas)</a></p> <p>* <a href="#">Arata, "How Coworking is Shaping the Office Market", (on Canvas)</a></p> <p><a href="#">Egan, "Under New Leadership, Will McDonald's Grill Up a New Real Estate Strategy?"</a></p> <p>Linneman, chapter 23: "Corporate Real Estate, Decision Making", pp. 320-333</p> <p><i>RQ 13: Zynga's sale-leaseback.</i></p>
	Thu, Nov 26	No class, Thanksgiving	
25	Tue, Dec 1	Midterm review	
26	Thu, Dec 3	No class - canceled in lieu of guest lecture.	
27	Tue, Dec 8	Final	
28	Tue Dec 10	No class - canceled in lieu of 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. Review your assignments promptly** so you can check the grading and make sure that your grade on Canvas matches the grade on your assignment.
- **Regrade requests should be submitted by email.** Please explain clearly the alleged grading error.
- 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.