

B8331 MBA Real Estate Finance**SUMMER 2024****PROFESSOR STIJN VAN NIEUWERBURGH**

Earle W. Kaxis and Benjamin Schore Professor of Real Estate

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TA:

E-mail: Office Hours:

TA:

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Communications from professor and teaching assistants about the course will take place through Canvas. Students should make sure they regularly check for announcements and messaging notifications.

COURSE DESCRIPTION

Real estate accounts for one third of the capital assets around the world. You simply cannot ignore it in as an investor or in any business, whether the business is called real estate or not!

This course provides students with a comprehensive understanding of real estate valuation, cycles, markets, investments, and decision-making, using modern finance and economics tools. The bulk of the course covers income-producing (commercial) property, although we will discuss residential housing as well.

This course is not a hodgepodge of vaguely connected methodologies and rules of thumb about real estate.

Rather, it uses a unified finance-based framework to answer real estate investment decision-making problems encountered in the real world. Doing so requires a good understanding of the institutional features that differentiate real estate from other asset classes and markets as well as modern finance and economics tools.

COURSE MATERIALS

- Class notes, readings, and cases are available on Canvas.
- *Real Estate Finance and Investments: Risks and Opportunities* by Peter Linneman—Strongly Recommended. This book provides background material and context for many of the concepts covered in class.
- *Commercial Real Estate Analysis and Investments* by Geltner and Miller, with Clayton and Eichholtz--provides a more detailed coverage and offers more quantitative analysis.

CONNECTION TO THE CORE

The learning in this course will utilize, build on and extend concepts covered in the following core courses:

Core Course	Connection with Core
Corporate Finance	<ol style="list-style-type: none">1. Time value of money2. Risk3. CAPM4. Modigliani Miller Theorem5. Arbitrage pricing and the law of one price6. Efficient Markets7. Frictions
Managerial Economics	<ol style="list-style-type: none">1. Maximization and thinking on the margin2. Analyzing complex decision-making under uncertainty3. Understanding market competition and equilibrium thinking
Managerial Statistics	<ol style="list-style-type: none">1. Statistics data analysis2. Probability intro3. Conditional probability4. Modeling uncertainty
Global Economic Environment I	<ol style="list-style-type: none">1. What causes inflation2. What drives employment3. What are the causes of business cycle4. What are the effects of monetary policy5. What is the role of financial markets in the economy

Students will be expected to have mastered these concepts and be able to apply them in the course

CLASSROOM NORMS AND EXPECTATIONS

Students are expected to adhere to CBS Core Culture in this class by being Present, Prepared, and Participating.

All of your assignment submissions are subject to the [CBS Honor Code](#). Violations of the CBS Honor Code may lead to failing the assignment, failing the course, suspension, and/or dismissal. In order to avoid ambiguity that may lead to unintentional violations of the Honor Code, assignment description types have been standardized and specified below.

Class participation counts for 5% of your course grade. Please don't be shy --Ask questions to clarify what we are discussing or to bring a different perspective in class. The course is cumulative, so being lost gets quite costly very quickly. Constructive comments in class will increase the participation points. Naturally, consistently bad or irrelevant participation will decrease the participation points. Unexcused absences or late arrivals will be considered as a factor in class participation.

COURSE ROADMAP/SCHEDULE

Session	Topic(s)	Assignments Due
1 05/21	Introduction <i>Iconic real estate deals in the major property types, impact of covid on CRE, property fundamentals and risk factors (tenant risk, zoning risk, operational risk, liquidity risk, rate risk).</i>	Watch pre-course video
2 05/23	Leases, Pro forma Analysis of Income Producing Properties <i>How to do a projected cash flow analysis of a property, limitations, NOI, CapEx.</i> Cap Rates <i>Definition and mechanics of calculating cap rates, the determinants of cap rates, linking discounted cash flows with cap rates. Choosing the right discount rate.</i>	
3 05/28	Mortgage Analysis <i>Features, mechanics and math of commercial real estate mortgages (calculation of amortization schedules, effective yields, prepayments, points). Calculating levered IRR</i> Introduction to Case 1, Part A Real Estate Capital Structure I: Implications for Risk and Return <i>The impact of debt and equity on returns, how much debt to use, LTV, expected ROE, expected return on mortgage debt.</i>	HW#1 Due
4 05/30	Discussion of Case #1, Part A Real Estate Capital Structure II: Fair Cost of Debt <i>Calculating state prices, pricing mortgage and equity, calculating a "fair" mortgage rate, quantifying the default risk embedded in mortgages, analyzing the relationship between mortgage rates and loan to value ratios.</i>	Case #1 Part A (The Associate's Task)
5 06/04	Real Estate Capital Structure III: Subordinate Debt and Mezzanine Financing <i>Pricing/valuing subordinate debt, calculating the "fair" mortgage rate on junior debt, loan to own</i> Ground Leases, Participating Mortgages, Personal Guarantees <i>Financing with a ground lease in place, valuing participating mortgages, the benefit of personal guarantees,</i>	
6 06/06	Discussion Case 1 Part B: Duke and Byline <i>lease roll over modeling.</i> Real Estate and Taxes <i>Quantitative and qualitative analysis and determination of a commercial real estate property investment. Taxation on income and capital gains, NOI and before-tax and after-tax cash flows, tax treatments for depreciation and interest income, tax shields.</i>	Case #1 Part B (The Associate's Task)
7 06/11	First Midterm exam in class (80 mins) Land Development, Valuation, Risk, and Return Introduction Case 2 (Graybar)	Midterm Exam
8 06/13	Mortgage Default Decisions <i>The option value to default: when to default?</i> Commercial Mortgage-backed Securities <i>What are commercial mortgage-backed securities (CMBS), market</i>	

	<i>size, how to value and invest in them, borrowing through CMBS versus balance sheet lenders</i>	
9 06/18	Discussion Case 2 (Graybar) Real Estate Investment Trusts <i>What are equity REITs, why invest in REITs, what are the tax advantages of a REIT structure, valuing REITs and measuring their profitability, FFO vs AFFO</i>	Case #2 Due (Graybar)
10 06/20	Real Estate Investment Trusts finishing up REIT discussion Real Estate Private Equity Funds Private Equity: <i>Private equity business models, managerial and investments skills of a general partner, fund investment strategies, distribution waterfall</i>	
11 06/25	Housing Markets and Housing Finance To Buy or Rent a Home?	HW#2 Due
12 06/27	Final Exam Guest Speaker	Second Midterm

ASSIGNMENTS

There will be both homework assignments and cases. They jointly account for 60% of your grade. Assignments should be turned in at the beginning of class on the day it is due. Late assignments will be accepted under no circumstances.

Cases will be completed in groups. The maximal size of a group will be 4. Under no circumstances, will I accept any group whose size is larger than 4. It is solely your responsibility to form the group. You will do three cases. Each case counts 15% towards your course grade.

Homework assignments will be completed individually. You will have two homework exercises. Each homework assignment accounts 5% of your course grade.

1st midterm

The first midterm exam covers material for the first half of the lecture. It is only offered in class. Make-ups are not given unless you have written authorization from the office of student affairs.

2nd midterm

The second midterm exam covers material from the lectures after the 1st midterm. It is only offered in class. Make-ups are not given, unless you have written authorization from the office of student affairs.

The two midterm exams jointly account for 40% of your course grade. When calculating your course grade, I will choose the larger score based on the following two weights: (i) 25% on the first midterm and 75% on the second midterm; and (ii) 50% on both the first and second midterms. I hope that this will give you incentives to work hard after the first midterm, even if you unfortunately did not perform well on the first midterm!

The readings distributed over the semester are to help you better understand concepts and materials covered in class. Materials only in the readings but not covered in class are not required for the exams. I will be very precise about what you need to know for the exams in the exam review sessions.

Re-grading

All requests for re-grades must be submitted, in writing, within one week of returning the graded homework, case, or the exam. You must submit the entire homework, case, or the exam, along with a detailed description of what you think was scored incorrectly. Before submitting your request, you should carefully examine the posted solutions. Re-grading may potentially lead to a lower grade.

METHOD OF EVALUATION

Participation	5%	C
Homework Assignments (2)	10%	C
Cases (3)	45%	A
Exams (2)	40%	C

ATTENDANCE POLICY

Students are required to attend each class. Students should reach out to the instructor or TA regarding excused absences (for religious observances; personal, medical, and family emergencies; military service; court appearances such as jury duty). Unexcused absences will affect your course grade.

This course may use PollEverywhere as a tool to increase in-class student engagement. PollEverywhere may also be used to confirm student attendance and participation records. Students who have concerns regarding whether their responses have been recorded should contact the instructor. Finally, if a student is not present in the classroom at the time of a poll (due to absences or any other reasons), the poll should not be answered. Responding to a poll when not present in the classroom is a violation of the Honor Code.

INCLUSION, ACCOMMODATIONS, AND SUPPORT FOR STUDENTS

At Columbia Business School, we believe that diversity strengthens any community or business model and brings it greater success. Columbia Business School is committed to providing all students with the equal opportunity to thrive in the classroom by providing a learning, living, and working environment free from discrimination, harassment, and bias on the basis of gender, sexual orientation, race, ethnicity, socioeconomic status, or ability.

Columbia Business School will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Columbia University's Office of Disability Services for information about registration. Students seeking accommodation in the classroom may obtain information on the services offered by Columbia University's Office of Disability Services online at www.health.columbia.edu/docs/services/ods/index.html or by contacting (212) 854-2388.

Columbia Business School is committed to maintaining a safe environment for students, staff and faculty. Because of this commitment and because of federal and state regulations, we must advise you that if you tell any of your instructors about sexual harassment or gender-based misconduct involving a member of the campus community, your

instructor is required to report this information to a Title IX Coordinator. They will treat this information as private, but will need to follow up with you and possibly look into the matter. Counseling and Psychological Services, the Office of the University Chaplain, and the Ombuds Office for Gender-Based Misconduct are confidential resources available for students, staff and faculty. “Gender-based misconduct” includes sexual assault, stalking, sexual harassment, dating violence, domestic violence, sexual exploitation, and gender-based harassment. For more information, see <http://sexualrespect.columbia.edu/gender-based-misconduct-policy-students>.