

B8463 RESIDENTIAL REAL ESTATE: DIRT, DEBT AND DERIVATIVES FALL 2022

PROFESSOR: BRIAN P. LANCASTER¹

Office: Kravis 781

Phone: 860-898-0436

E-mail: blancaster.nyc@gmail.com

Office Hours: Please contact me and we can arrange a meeting or call.

COURSE ASSISTANTS

TBD

TBD@gsb.columbia.edu

Cell: TBD, office hours: by appointment

TBD

TBD

Cell: TBD

Grading CA: TBD

TBD@gsb.columbia.edu

Cell: TBD

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.

SCHEDULE AND LOCATION

Section 1: Mon. & Wed. 10:20AM – 11:50AM

Classroom: Kravis 890, Fridays will be in Geffen 520; Some FULL COURSE REMOTE EMBA's will be permitted.

COURSE DESCRIPTION

The focus of this course is the \$27 trillion U.S. housing market, the largest real estate market in the world, a topic of ongoing interest but with particular resonance as debate continues as to how to privatize the GSEs and address the acute current lack of housing affordability that has resulted in decreased home ownership, greater renting, record homelessness, and a massive backlog in manufactured housing as first time home buyers are shut out of the traditional stick built market. Where possible we will also include reference to non-U.S. housing markets such as comparing their mortgage finance systems with that of the U.S.

The course's objective is to teach the student how to develop, value, finance, and invest in residential real estate and residential real estate debt securities and derivatives as well as to understand how the US residential financing system works. Given its' broad and deep sweep, students will learn about a wide range of topics ranging from the importance of fits and finishes in selling homes in a new subdivision, to how to entitle land, to how blockchain is being used to disrupt the mortgage origination process, to how to create an Agency residential CMO companion bond and a lot more. A range of housing types will be covered including: single family subdivisions, market rate urban condominiums, low and moderate income housing, workforce and student housing, manufactured housing, and senior residential living communities, and rental apartments. At the end of the course we will also focus on racism and real estate.

The course is recommended for Columbia Business School MBA, EMBA, PhD and MSc financial engineering students who wish to understand these markets better or who want to pursue careers or side businesses in developing and/or buying

¹ A brief biography of Professor Lancaster is at the back of this syllabus.

residential types of real estate, and/or who wish to trade, sell, research, or institutionally invest in residential real estate securities and derivatives. Cross registrants from SIPA, the School of Engineering, Law and Journalism schools who want to better understand how housing development and the US housing finance system works are also welcome.

The approach of the course will be both theoretical and applied with an emphasis on the latter. In general topics will be covered first in a lecture/discussion format, followed by a case class with a senior practitioner discussing the topic with the class generally as they have experienced it and then a recent, actual, specific business situation (a “raw case”). An example of the number of different “raw cases” in the course would be the development of a condominium project in Manhattan led by a large residential developer operating in San Francisco, New York and Boston. The course will also feature highly regarded thought leaders as guest speakers leading case discussions on key topics, such as Hugh Frater, CEO, Fannie Mae, on the future of the US housing financing system, the founders/presidents of companies developing suburban market housing, urban condominiums, low and moderate income housing and the head of securitization at NewRez who will discuss the future opportunities and challenges of creating, trading, selling and investing in residential securities and derivatives.

This fall due to popular student demand, the part of the course focused on housing development (“the Dirt”) has been increased by one session on how to conduct housing development feasibility studies led by a new additional guest speaker Melissa Burch, Executive General Manager, Lendlease Americas, and the section on Derivatives reduced by one session so that the “Dirt or development section now makes up about 50% of the course. Given current events, course topics on the impact of COVID 19 on the housing sector as well as the past and current issues regarding race and residential real estate have been added.

There will also be cases, homework assignments, a midterm and final exam. The raw cases and homework assignments will be done in teams of three. The homework assignments are designed to deepen students understanding of key concepts and to prepare students for the mid term and final; the cases, to sharpen students’ critical thinking and judgment in applying the concepts in the course to real business situations and to provide students with a practical foundation should they wish to pursue a career in housing development or housing finance.

PowerPoints of lectures and reading materials will be posted on CANVAS before class and all classes will be recorded and made available to students on request. One class will be held remotely via Bloomberg where students will be grouped into teams and given residential real estate securities (Agency MBS and Agency CMOs) to analyze on a Bloomberg to make investment decisions. Some cash flow modeling in Excel will also be done.

All students who would like to understand these huge, critical markets are welcome. The course would be particularly appropriate for students wishing to pursue careers as developers or investors in residential real estate properties (“the dirt”) as well as for MBA, MS, or PhD students wishing to pursue careers in residential real estate finance and/or the trading, creating, investing in, analysis, selling or regulation of residential real estate securities (“the debt and derivatives”).

“The Dirt” (about 60% of the course)

After an introductory overview of the US housing market, its’ history, its’ unique hybrid system of housing finance, and linkages between the housing and capital markets, the first part of the course will focus on the housing markets and

housing development, both market priced and affordable housing . What influences the buyers' purchase decision? What drives house price appreciation and depreciation? How does one entitle land? How does one develop a residential subdivision, urban high-rise condominium, manufactured housing or market rate or affordable rental apartments. Critical steps including idea origination, feasibility studies, negotiation, construction, marketing and sale, financing land, construction/development, lender underwriting, differences from stabilized finance (covered in Real Estate Finance course), draws etc. What is the process of buying a house or condominium (title and lien searches, property taxes, engineering reports, real estate brokers, environmental evaluations etc., MLS services). Who are the new companies disrupting these old businesses and how are they doing so.

"Debt" (about 20% of the course)

The second section of the course will cover the \$10 trillion US residential real estate financing system ("the debt"). How is a US residential development mortgage underwritten in the absence of sufficient existing collateral, how is an individual residential mortgage underwritten, how are FICO scores and debt to income (DTI) ratios used. What is the best way to value non-income generating real estate assets, such as a house. What are the different types of US residential mortgages (fixed, floating, amortizing, IO, biweekly, reverse mortgages, equity sharing mortgages), how do they work and what are the mathematics behind them. How do banks finance and account for these mortgages on balance sheets in the wake of the 2008 US housing meltdown.

How do banks securitize residential mortgages in both the private and agency (GNMA, FNMA, FHLMC) markets. How do the rating agencies rate private label MBS? What are the roles of the Government Sponsored Enterprises (GSEs), Fannie Mae, Freddie Mac, Ginnie Mae and the \$1 trillion Federal Home Loan Bank System (FHLB)? How do they help finance different types of US housing. What are their strengths? What were their weaknesses that led to their near collapse in 2008 and ways of operation now? How should they be changed to avoid a similar fate in the future. What are Connecticut Avenue securities? Structured Agency Credit Risk (STACRS) securities? Why are they being used and how to value and invest in them. How do bond investors, traders, and chief investment officers analyze, price, hedge, and invest in private and agency mortgage backed securities (MBS)? What are TBA MBS and how are they traded. What is the impact of the new uniform MBS security that replaced TBA MBS when it was launched last summer and why was it created? How are mortgage pipelines and servicing managed and hedged. What has been the impact of COVID-19 on residential debt and the housing markets generally. What are the opportunities and risks in these markets? How do we model and forecast residential credit defaults and prepayments? How do mortgage REITs work? What risks and opportunities do they offer and what is their role in the US housing system? How do dollar rolls and repo work to finance residential mortgage backed securities.

"Derivatives" (about 20% of the course)

The final section will cover securities that are derived from US residential mortgage debt and debt securities such as agency and non-agency collateralized mortgage obligations (CMOs). How can we use financial engineering and structuring to change prepayment risk and credit risk to suit investors needs and to increase underwriter profits? What conflicts arise from these two goals and what are the regulations to mitigate these conflicts. What are interest only and principal only securities? PACs, companions, inverse floaters etc. What residential mortgage indices are available (e.g.

MBX, IOS, etc.) how can they be used to invest, hedge and arbitrage markets. How do we calculate duration and convexity in securities with embedded call options? How can option adjusted spread analysis be used and what better measures are there in hedging and valuing option embedded MBS.

Finally the course will cover racism and real estate. How have US government and private sector policies contributed to segregation and substandard housing for people of color? What should be done and what is being done to mitigate these policies? We will also discuss a non-profit cooperative solution to providing affordable housing for low income Americans and the homeless a part of the market where the free markets don't operate effectively.

PREREQUISITE: Same as Real Estate Finance, B6300 Corporate Finance and B8306 Capital Markets as a co-requisite.

REQUIRED COURSE MATERIALS

Course Handouts: PowerPoints of lectures, readings, and cases will be available on CANVAS before classes. Students should make sure to read lecture PowerPoint slides and readings BEFORE each class. They may bring their lecture PowerPoint slides with them to class, however PowerPoint slides will be provided at the beginning of each class so that students may take notes on them. The purpose is to encourage students to actively participate in class discussions not note taking. Some class "cold calling" questions will be embedded in these lecture notes. Readings that are optional are indicated. They are provided for students who wish to take a deeper look into a particular topic. They are also helpful additional reference documents to keep should you pursue a career in residential real estate finance. Lectures will be recorded and made available on demand.

CONNECTION TO THE CORE

- Corporate Finance: Time value of money, risk, CAPM, Modigliani Miller Theorem, arbitrage pricing and the law of one price, efficient markets, frictions.
- Managerial Economics: Maximization and thinking on the margin, analyzing complex decision-making under uncertainty, understanding market competition and equilibrium thinking.
- Managerial Statistics: Statistics data analysis, probability intro, conditional probability, modeling uncertainty.
- Global Economic Environment I: What causes inflation, what drives employment, what are the causes of business cycle, what are the effects of monetary policy, what is the role of financial markets in the economy.

CLASSROOM NORMS AND EXPECTATIONS

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

Please bring and post name plates in every class. Class participation counts for 10% of your course grade. Please participate. The course is cumulative, so being lost gets quite costly very quickly. TAs will take attendance and note class participation. Excessive unexcused absences from class will weigh more heavily than 10% on your grade. Constructive comments in class will increase the participation points. Please turn off cell phones, laptops, Blackberries, etc. Absences or late arrivals will be considered as a factor in class participation. Materials covered by guest lecturers are required.

COURSE ROAD MAP/SCHEDULE²

Session	Topic(s)	Required Pre-Readings	Assignments Due (Type)
1 09/7/2022 (W)	Course Overview and Requirements: Overview of the US housing and housing finance markets; the link between these markets and the 2007 Crash.	Session 1 Lecture notes (CANVAS)	
2 09/9/2022 (F) Make up class for Labor Day Holiday Geffen 520	Residential Real Estate Price Dynamics: <i>The fundamental determinants of residential real estate prices – interest rates, jobs, taxes, zoning, regulations, environmental factors etc. The recent impact of state and local tax deductibility changes. User cost model. Methods for measuring real estate price changes; Commonly used residential property price indexes and embedded biases.</i>	Session 2 Lecture Notes Mayer-Hubbard, Housing Prices, Interest Rate and the Mortgage Market Meltdown (CANVAS) Himmelberg, Mayer, Sinai: Assessing High House Prices: Bubbles, Fundamentals and Misperceptions (CANVAS) Case-Shiller Prices of SF Homes... HW #1 (CANVAS) Due 9/19/22	
3 09/12/2022 (M)	Investing in Residential Real Estate <i>Factors influencing the homebuyer purchase decision, mortgage rates, expected appreciation, time horizons etc.</i>	Session 3 Lecture notes. (CANVAS) Readings TBD (CANVAS)	
4 09/14/2022 (W)	Residential Real Estate Development (Part 1) <i>The stages of developing residential real estate properties (housing subdivisions, condominiums, garden apartments, multifamily apartments. Idea conception, feasibility, planning, financing, market analysis, contract negotiation, construction, marketing. Construction financing how it works, differences with stabilized CRE financing.</i>	Session 4 Lecture Notes (CANVAS) Readings TBD (CANVAS)	
5 09/19/2022 (M)	Residential Real Estate Development (Part 2) <i>The stages of developing residential real estate properties (housing subdivisions, condominiums, garden apartments, multifamily apartments. Idea conception, feasibility, planning, financing, market analysis, contract negotiation, construction, marketing. Construction financing how it works, differences with stabilized CRE financing.</i>		HW # 1 Real Estate Price Dynamics Due (A: Group).

² The dates on which various topics are discussed in class may change depending on when speakers can attend.

<p>6 09/21/2022 (W) No class Monday Sept 26</p>	<p><i>Residential Construction and Land Finance:</i> <i>Land loans, development, redevelopment and construction loans. How they are underwritten, how this is different from stabilized CRE lending, their characteristics, construction budgets, draw requests, borrower, GC and lender interactions during the development process, cost to completion, take out finance, impact of recent HVCRE regulations.</i></p>	<p>Session 9B Residential Construction and Land Finance notes. (CANVAS AIA Pay Application Excel Form, Construction Lending Industry Standard Practices</p>	
<p>7 09/28/2022 (W)</p>	<p>Residential Development Feasibility Studies</p> <p>Guest Speaker: Melissa Burch, Executive General Manager, Lendlease Americas and a leading developer in NYC for 18 years including \$2B of development at Lendlease in the last 6 years will discuss how to conduct feasibility studies for residential developments (feasibility pro formas, determining target area market, zoning issues, project type and size etc.</p>		
<p>8 09/30/2022 (F) Friday Make-up Class for Monday Sept. 26</p>	<p>Case #1 Discussion: Suburban Subdivision Development</p> <p>Guest Speaker: Adam Rapport, head of acquisitions at Cross Lake Partners (a spinout of Paulson and Partners with a focus on buying distressed subdivisions and one of the largest owners of residential lots in the US) will discuss their experiences, how to develop residential subdivisions as well as the challenges and opportunities involved in the process of entitling land and developing suburban residential subdivisions.</p>	<p>Case #1: Entitling land and Residential single family subdivision development for ownership and rent case documents will be posted online (CANVAS)</p> <p>Case 1 due Oct 3.</p>	<p>Case #1 The guest speaker will provide documents for a real deal entitling land and developing and financing a residential subdivision as well as renovating and building houses for the single family rental market. Students will be expected to read documents and prepare questions for the speaker.</p>

9 10/03/2022 (M) No Class Wed Oct 5.	Case #2 Discussion: Urban Condominium Development <i>Guest Speaker: Chris Prokop, Founder and President, DDG will discuss the opportunities and challenges of developing and selling two recent condominium developments in Tribeca and in San Francisco.</i>	Case #2: Urban condominium case documents. (CANVAS) Writeup due Oct. 10	Case #2 The speaker will provide documents for a deal related to developing and financing luxury condominiums in Lower Manhattan. Students will be expected to read documents and prepare questions for the speaker. Case #1 due.
10 10/07/2022 (F) Make up class for Wed October 5 class.	Case #3 Discussion: Affordable Housing, Workforce Housing, Low Income housing development. <i>Guest Speaker: Meredith Marshall, co-founder and CEO of BRP Properties and CBS alumnus. Mr. Marshall will discuss the affordable, low income and workforce housing market overall, how it is funded, joint private public financing, programs and partnerships and the challenges and opportunities of developing this type of housing. He will then discuss the opportunities and challenges of developing a specific affordable housing project.</i>	Case #3: Affordable Housing Development Project in Harlem case documents (CANVAS) HW #2 (CANVAS) Due Oct 26	No writeup for Case 3
11 10/10/2022 (M)	Manufactured and modular housing: History of manufactured housing; the MH ABS crash; mortgage vs chattel financing; an affordable housing solution in rural and urban areas; growth due to single family rental market; growth constraints zoning/financing; business opportunities; technology, startups and the future of manufactured and modular housing, Chinese modular housing.		Case 2 Urban Condominium Writeup due.
12 10/12/2022 (W)	Residential Mortgage Contracts and Mortgage Math: Part I <i>Different types of residential mortgages (Fixed rate, ARMs, Hybrid ARMs, IO, Prime, Alt-A, Limited Doc, No Doc, Sub-Prime, HELOCs, Option ARMs, Reverse Equity Mortgages, Shared Appreciation mortgages. Comparison of US mortgages vs those in other countries. Residential fixed and adjustable rate mortgage math</i>	Session 12 lecture notes (CANVAS) Readings: Excel spreadsheet, Mortgage Math Examples (CANVAS) Optional: ARM Share of Mortgage Market, Moench, Vickery & Aragon (CANVAS);	

13 10/24/2022 (M)	Residential Mortgage Contracts and Mortgage Math: Part II <i>Different types of residential mortgages (Fixed rate, ARMs, Hybrid ARMs, IO, Prime, Alt-A, Limited Doc, No Doc, Sub-Prime, HELOCs, Option ARMs, Reverse Equity Mortgages, Shared Appreciation mortgages. Comparison of US mortgages vs those in other countries. Residential fixed and adjustable rate mortgage math.</i>	Session 13 lecture notes. (CANVAS)	
14 10/26/22 (W)	Residential Mortgage Risks and Securitization: <i>Interest rate risk, credit/default risk, liquidity risk and prepayment risk; How agency and non-agency residential mortgage securities are created; overcollateralization, excess spread, senior sub structures, CDOs, , warehouse lines, reps and warranties</i>	Session 14 lecture notes. (CANVAS) Liar's Poker, Ch. 5, 6, 7. (CANVAS) HW #3 Residential Mortgage Risks, Prepayments, US Mortgage Finance System due 11/9/22	HW #2 Mortgage Math Due (A: Group)
MIDTERM EXAM: TAKE HOME EXAM TO BE TAKEN FROM NOVEMBER 4 THROUGH NOVEMBER 13 AT 11:59PM			
15 10/31/2022 (W)	Understanding Residential Mortgage Prepayments <i>Mortgage and embedded call and put options; contraction/extension risk; economic and non-economic determinants of prepayments, burnout; G-fees, The Fed and the Experience of QE3.</i>	Readings: Session 15: Lecture Notes (CANVAS)	
16 11/2/2022 (W)	The US Residential Mortgage Finance System: <i>How the complex hybrid US residential mortgage finance system works including balance sheet lenders, private sector and Government Sponsored Enterprises securitizations (Fannie Mae, Freddie Mac, Ginnie Mae, Federal Home Loan Bank System) and mortgage REITs.</i>	Session 16 Lecture Notes (CANVAS) Readings: The Role of Securitization in Mortgage Lending, Federal Reserve Bank of Chicago. (CANVAS)	
17 11/9/2022 (W)	MBS Valuation and Trading <i>Weighted average life spreads, yields, Z-spreads, OAS, beyond OAS, effective duration, effective convexity; dollar rolls, hedging mortgage pipeline risk.</i> .	Session 17 Lecture Notes (CANVAS) Readings: Price of Risk Constant: Going Beyond OAS, Cohler, Feldman and Lancaster, Journal of Fixed Income (CANVAS) HW #4 due 12/05/22	HW #3 Mortgage Risks, Prepayments, US Mortgage Finance System Due (A: Group)

18 11/14/2022 (M)	Collateralized Mortgage Obligations (CMOs) <i>Carving cash flows into bonds incl.: sequential pay, planned amortization class, targeted amortization class, floaters and inverse floaters, companion bonds, Splitting the atom - IOs and POs. Conflicts of interest</i>	Session 18 Lecture Notes (CANVAS)	
19 11/16/2022 (W)	Non-Agency Mortgage Backed Securities <i>Credit and prepayment tranching: role in the sub-prime crisis, path to the future?</i>	Session 19 Lecture Notes	
20 11/21/2022 (M)	The Future of US Housing Finance Guest Speaker: Hugh Frater, CEO, Federal National Mortgage Corporation, will discuss pre and post-crash changes at the GSEs, how the GSEs are mitigating the impact of COVID on the housing market, the outlook for US housing finance and GSE Reform	Session 20 Lecture Notes (CANVAS)	
21 11/28/2022 (M)	The Business of Creating, Valuing and Trading Agency MBS, Agency CMOs, Non-Agency CMOs. The impact of the new Uniform Mortgage Backed Securities on the MBS market, COVID-19 impact on the market, and other current topics in the Agency and Non-Agency MBS markets Guest speaker: Baron Silverstein, President of New Residential Corp.; former Head of Residential Mortgage Finance at Bank of America; Co-Head of the US RMBS Mortgage Finance Dept. at JP Morgan		
22 11/30/2022 (W)	Bloomberg Session: <i>Case #4: Analysis of an Agency MBS and CMO deal on Bloomberg terminals at Bloomberg Headquarters. (Offsite or zoom class.)</i> Guest Speaker: Jeff Hingst, MD and Team Leader Bloomberg Analytics	Case 4 Agency MBS and CMO documents (CANVAS) Case 4 will be worked on at Bloomberg Headquarters or in class depending on availability.	

<p>23 12/5/2022 (M)</p>	<p>Racism and Real Estate Housing is the largest source of wealth for American families and its value the primary determinant of education quality and opportunity for American youth. This session explores and critiques various federal, state and local government and private sector housing policies and programs that have fostered segregation (e.g. redlining, real estate race covenants, blockbusting etc.) and economic inequality (the local property tax financed educational system). In addition, government and private sector policies designed to encourage housing integration (e.g. gentrification, opportunity zones) and their sometimes unintended consequences will be examined. Homogeneous and mixed income housing strategies will be analyzed with the goal of understanding their tradeoffs and developing new and improved housing strategies.</p> <p>Guest Speaker: Hope Burgess CEO of Banana Kelly, and Harry DeRienzo, Co-Founder and President Emeritus, Banana Kelly, Community Improvement Assoc., S. Bronx. Banana Kelly a community development organization started in 1978, has redeveloped over 2,240 apartments in the S. Bronx. At the time 70% of the housing stock had been burned or destroyed. Today, 1,240 apartments remain under its sponsorship and management. Hope Burgess originally a homeless person and currently CEO of one of the largest not for profit affordable housing associations in the US will tell the compelling story of her rise and the challenges and opportunities at Banana Kelly.</p>	<p>Reading: The Color of Law: A Forgotten History of How Our Government Segregated America; Selected Chapters. (CANVAS)</p>	<p>HW #4 Relative Value Measures, YTM, Z spreads, OAS, Agency CMOs, Non-Agency CMOs, Due. (A: Group); Mortgage REITs.</p>
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24 12/7/2022 (W)	Final Exam		
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METHOD OF EVALUATION

Class Participation	10%
Cases (4)	25%
Homework Exercises (4)	20%
Midterm & Final Exam	45%

- **Assignments:** There will be homework assignments and cases. Homework assignments and cases will be completed in groups up to a maximum of 3 students. It is your responsibility to form the group. Assignments should be turned in at the beginning of class on the day it is due. Late assignments will not be accepted.
- **Midterm:** The midterm exam covers material for the first half of the term. It is only offered in class. Make-ups are not given unless you have written authorization from the Office of Student Affairs (OSA). The midterm is to be taken individually.
- **Final Exam:** The final exam covers material primarily from the lectures after the 1st midterm. Some material from the first half of the class may also be included. It is only offered in class. Make-ups are not given, unless you have written authorization from the Office of Student Affairs (OSA). The final exam is to be taken individually.
- Students must be prepared to discuss the “raw cases” led by guest speakers in class and and turn in a one page write-up that will be graded and taken into consideration in the case course grade.

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.

ASSIGNMENTS

All of your assignment submissions, cases and exams are subject to the [CBS Honor Code](#). **Violations of the CBS Honor Code WILL lead to failing the assignment, case or exam and receiving an F for the entire course.** In order to avoid ambiguity that may lead to unintentional violations of the Honor Code, assignment description types have been standardized and specified below and specified above.

<u>Type</u>	<u>Designation</u>	<u>Grade</u>	<u>Preparation of submission</u>	<u>Discussion of Submission*</u>	<u>Discussion of Concepts**</u>
A	Group Work	Same grade for all group members	By the group	Permitted to discuss (within group)	Permitted
B ¹	Individual w/ Discussions of Concepts and Submission	Individual grade	Individual preparation	Permitted to discuss; sharing solutions or submission files is not allowed	Permitted
B ²	Individual w/ Discussions of Concepts Only	Individual grade	Individual preparation	Not permitted to share/discuss solutions or submission	Permitted
C	Individual	Individual grade	Individual preparation	Not permitted to share/discuss solutions or submission	Not permitted***

* The designated group can be either an assigned study group or a self-selected one.

ATTENDANCE POLICY

Students are required to attend each class. Students should reach out to the [Office of Student Affairs \(OSA\)](#) by using Core Absence Form on this course's Canvas page 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.

NOTE: The following is applicable for Core Courses:

- Students that miss more than **33%** of their classes (unexcused absences) will at most receive a **P for the course grade**
- Students that miss more than **50%** of their classes (unexcused absences) will receive a **F for the course grade**

NOTE: The following is applicable for Core Courses and for any electives with OSA-administered exams:

- Students that miss the exam for an **excused** reason but are unable to take the exam within the stated make-up period will receive a **zero for the final exam grade**
- Students that miss the exam without notifying OSA (**unexcused**), will receive an **F for the course grade**

Taking exams off schedule creates significant logistical challenges in finding rooms and proctors and most importantly, has the potential to jeopardize the integrity of the exam. Therefore, requests for rescheduling of exams should only be made within the first three weeks of the semester and only for serious conflicts.

Rescheduling of exams for weddings, early travel home are not acceptable. Last minute rescheduling of exams may only be done for very serious cause.

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>.

PROFESSOR'S BIOGRAPHY

Professor Lancaster has over twenty five years of professional experience in commercial and residential real estate finance and capital markets including currently President, The Minot Group* (real estate finance and capital markets consulting to hedge funds, private equity, REITs, banks and insurance companies); Co-head Financial Analytics and Structured Transactions, RBS; Chief Investment Officer, Real Estate Division, Wachovia/Wells Fargo; Head of Commercial Real Estate Research, Wachovia Capital Markets; Head of Structured Products Research, Wachovia Capital Markets; Managing Director Principal Bear Stearns (commercial and residential real estate securities); Senior Capital Markets Economist Federal Reserve Bank of NY and Bank of England. He was a top three-ranked Institutional Investor All American Research Analyst for three years.

He also invests in real estate development projects in the US (LA apartments, distressed retail, RMBS and CMO hedge fund, real estate private equity in Asia, U.S. mezzanine and bridge funds and has developed condominiums in NYC. His passion for real estate started with his work on the redevelopment of Boston's waterfront as a sophomore at MIT.

He is a full time professor in the MBA program at the Columbia Business School and was formerly an adjunct professor at the Columbia Business School and the Stern School of Business, New York University. He serves periodically as faculty advisor on Columbia Business School Chazen trips (Thailand/SE Asia; Rwanda/Tanzania).

He holds a BSc in Economics from the Massachusetts Institute of Technology, an MBA in Finance, Stern School of Business, New York University, and a Master of International Affairs and Public Policy, Columbia University.

He is a former board member of the Commercial Real Estate Finance Association, a former Executive Committee member of the Mortgage Bankers Association and Editor in Chief of Commercial Real Estate Finance journal. He periodically lectures at Duke University and the Wharton School of Business, University of Pennsylvania.

*The Minot Group LLC was voted one of America's Best Management Consulting Firms by Forbes in 2017, 2018, 2019,, 2020, 2021. Past and current clients include Alliance Bernstein, Alinma Investment Co., Centerbridge, China Construction Bank, Citadel, Citigroup, Deutsche Bank, Fidelity, Fortress, FHLB, Goldman Sachs, Housing Finance Fund of Iceland, McKinley and Co., McKinsey and Co., McGraw Hill, MFS Investment Mgmt., Parthenon Capital, Ping An of China, Verisk, and Wells Fargo.