



THE OHIO STATE UNIVERSITY

FISHER COLLEGE OF BUSINESS

## BUSFIN 4410 Real Estate Finance

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**Instructor:** Prof. Itzhak Ben-David    **E-mail:** ben-david.1@osu.edu

**Teaching assistant:** Mengyi Chen    **E-mail:** chen.10503@osu.edu

**Office hours:** Mon 1:00–2:00, **by appointment only**

**Section 1:** Mon/Wed 2:20pm–3:40pm Mason Hall 405

**Section 2:** Mon/Wed 3:55pm–5:15pm Mason Hall 405

Zoom/video links will be available on CarmenCanvas where applicable

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### Course Description

This course covers advanced topics in real estate finance. We will cover three topics in depth. First, we will examine several valuation techniques used in practice and explore their underlying assumptions. These methods include cap rates, cash flow discounting, simulation techniques, and real options. We will discuss the financing of real estate assets through debt and equity. Second, we will discuss how real-estate assets are integrated into capital markets through Real Estate Investment Trusts (REITs), private equity, and securitization vehicles. Third, we will discuss the role of the real estate market in the macroeconomy, particularly in the Global Financial Crisis (2008).

### Course Objectives

At the end of the course, students are expected to:

1. Master the assumptions, principles, and methodologies of valuation and financing assets in general and real estate assets specifically.
2. Demonstrate competency in integrating tools and methods to analyze new transaction-level problems related to real estate properties and financing.
3. Demonstrate competency in analyzing new economic problems related to real estate assets, the real estate asset class, and real estate in financial markets.



## **Prerequisites**

This is a quantitative finance class, and as such, students are expected to have prior knowledge of finance, microeconomics, statistics, and math. The instructor will review finance principles in the first few classes. Students must be either Finance majors or have completed BUSFIN 3400. Students are expected to have a solid knowledge of finance basics, including valuation and debt financing. Students will need a good command of Microsoft Excel.

## **Instructor**

Professor Itzhak (Zahi) Ben-David is the Neil Klatskin Chair in Finance and Real Estate at the Finance Department, Fisher College of Business, The Ohio State University. In addition, he is the Academic Director of the Ohio State University Center for Real Estate and a Research Associate at the National Bureau of Economic Research (NBER). Ben-David's research spans several finance areas, including real estate, financial intermediation, financial markets, behavioral finance, and household finance. Before joining academia, Ben-David worked in consulting and real estate investments. Professor Ben-David holds a Ph.D. in Finance and MBA from the University of Chicago, a B.Sc. and an M.Sc. in Industrial Engineering, a B.A. in Accounting from Tel-Aviv University, and an M.S. in Finance from London Business School. Professor Ben-David served as an expert witness in several mortgage-related court cases.

URL: <http://u.osu.edu/ben-david.1/>



## Grading and Evaluation

The course grade scale matches the OSU standard grade scheme. Grades of C and higher reflect mastery of the material. Grades in this course will be based on a scale ranging from 0 to 1000, according to the following breakdown:

Item	Weight
Individual work	
Assignments	(8 × 30) 240 points
Attendance	(6 × 10) 60 points
Mid-term exam I	300 points
Mid-term exam II	300 points
Group project	
Interview assignment	100 points
Total	1000 points

- Attendance is not required. However, you must attend all **guest lectures** to receive the full 60 points.

## Assignment Submission Format

- All individual submissions will posted and completed on CarmenCanvas.
- Do not submit Excel spreadsheets; they will not be opened. If you want to present a table or a chart, please copy them to the Word document.
- Unless stated otherwise, there will be no partial credit for individual questions.
- The interview assignment is a group assignment, with group sizes of up to 5 students. The assignment will be posted and submitted via CarmenCanvas.
- Late submissions will incur a penalty of 10% per day.

## Make-Up Exams and Regrading Policy

Please note that there will not be any make-up exams except as required by university policy. If an illness or an emergency should force you to miss an exam, please get in touch with the instructor **before** the exam date (ben-david.1@osu.edu). All regrade requests must be made *within one week* of returning the exam or assignment. No regrade requests will be considered following the one-week deadline. Any materials submitted for regrading are subject to a complete regrade. As a result, the regraded score may increase, stay the same, or decrease.



**Electronic devices policy** No electronic devices are permitted except for class use.

**Credit hours and work expectations** This is a 3 credit-hour course. According to The Ohio State University bylaws on instruction ([go.osu.edu/credithours](http://go.osu.edu/credithours)), students should expect around 3 hours per week spent on direct instruction (instructor content and CarmenCanvas activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of C average.

**Sections** The class has two sections. Students can attend either section. Also, students from both sections can be part of the same groups.

**Preferred contact method** If you have a question, please contact me via [ben-david.1@osu.edu](mailto:ben-david.1@osu.edu). I typically reply to emails within 24 hours. No phone messages, please.

**Class announcements** I will send all important class-wide messages through Canvas. Please check your notification preferences ([go.osu.edu/canvas-notifications](http://go.osu.edu/canvas-notifications)) to ensure you receive these messages.

**Discussion board** The discussion board will not be used in this course.

**Course technology** For help with your password, university email, Canvas, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at [ocio.osu.edu/help/hours](http://ocio.osu.edu/help/hours), and support for urgent issues is available 24/7.

- Self-Service and Chat support: [ocio.osu.edu/help](http://ocio.osu.edu/help)
- Phone: 614-688-4357(HELP)
- Email: [servicedesk@osu.edu](mailto:servicedesk@osu.edu)
- TDD: 614-688-8743

**CarmenCanvas access** You will need to use BuckeyePass (<https://buckeyepass.osu.edu/>) multi-factor authentication to access your courses in Canvas. To ensure that you can connect to CarmenCanvas at all times, you take the following steps:



- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass: Adding a Device ([https://osuitsm.service-now.com/selfservice/kb\\_view.do?sysparm\\_article=kb05025](https://osuitsm.service-now.com/selfservice/kb_view.do?sysparm_article=kb05025)) help article for step-by-step instructions.
- Download the Duo Mobile application ([https://osuitsm.service-now.com/selfservice/kb\\_view.do?sysparm\\_article=kb05026](https://osuitsm.service-now.com/selfservice/kb_view.do?sysparm_article=kb05026)) to all of your registered devices for the ability to generate one-time codes if you lose cell, data, or Wi-Fi service.

If none of these options will meet your situation's needs, you can contact the IT Service Desk at 614-688-4357 (HELP), and IT support staff will work out a solution.

### **Academic Integrity**

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect all students to read and understand the University's Code of Student Conduct. All students will complete all academic assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct (<https://trustees.osu.edu/bylaws-and-rules/code>), this syllabus, instructions posted in Canvas, and instructions given in class/lectures, including any sharing, posting, or distribution of any assignment, assessment activity, or solution via any method may constitute Academic Misconduct (<https://oaa.osu.edu/academic-integrity-and-misconduct>).

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the University's academic integrity or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying another student's work, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University. If you have any concerns



or questions about the above policy or what constitutes academic misconduct in this course, please get in touch with me before taking individual action.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct ([go.osu.edu/coam](http://go.osu.edu/coam))
- Ten Suggestions for Preserving Academic Integrity ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))
- Eight Cardinal Rules of Academic Integrity ([go.osu.edu/cardinal-rules](http://go.osu.edu/cardinal-rules))

### **Disability Services**

The University strives to make all learning experiences accessible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately to discuss options privately. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, please make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented promptly.

SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W 12th Avenue.

**COVID-19 Policy** The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented promptly.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the Safe and Healthy Buckeyes site for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them via the contacts above.



## Accessibility of Course Technology

This course requires using CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. Please request accommodations as early as possible if you need additional services to use these technologies.

- CarmenCanvas accessibility ([go.osu.edu/canvas-accessibility](https://go.osu.edu/canvas-accessibility))
- Streaming audio and video
- Zoom accessibility ([go.osu.edu/zoom-accessibility](https://go.osu.edu/zoom-accessibility))

## Mental Health

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating, and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce students' ability to participate in daily activities. No matter where you are in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) supports you. If you feel isolated, anxious, or overwhelmed, on-demand mental health resources ([go.osu.edu/ccsondemand](https://go.osu.edu/ccsondemand)) are available. When CCS is closed, you can reach an on-call counselor at 614- 292-5766. 24-hour emergency help is available through the National Suicide Prevention Lifeline website ([suicidepreventionlifeline.org](https://suicidepreventionlifeline.org)) or by calling 1-800-273-8255(TALK). The Ohio State Wellness app ([go.osu.edu/wellnessapp](https://go.osu.edu/wellnessapp)) is also a great resource.

## Harassment, Discrimination, and Sexual Misconduct Free Environment

The Ohio State University is committed to building and maintaining a community to reflect diversity and improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate based on age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery from there), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.



To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at [equity.osu.edu](http://equity.osu.edu)
2. Call 614-247-5838 or TTY 614-688-8605
3. Email [equity@osu.edu](mailto:equity@osu.edu)

The University is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the University can take appropriate action:

- All university employees, except those exempted by the legal privilege of confidentiality or expressly identified as a confidential reporter, must report incidents of sexual assault immediately.
- The following employees must report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information:
  1. Any human resource professional (HRP);
  2. Anyone who supervises faculty, staff, students, or volunteers;
  3. Chair/director; and
  4. Faculty member.

### **Copyright for Instructional Materials**

The materials used in this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the class. Copyright law must be considered before copying, retaining, or disseminating materials outside the course.





## Topics Covered

1. Review of valuation building blocks
  - (a) Annuities, perpetuities, Gordon model
  - (b) Risk and return: CAPM
2. Direct investment in real estate assets
  - (a) Equity-financed assets
    - i. Valuation using the income approach (DCF: discounted cash flows)
    - ii. Alternative valuation methods: Replacement cost, Comparable assets
  - (b) Economics of mortgages
    - i. Amortization calculations
    - ii. Types of mortgages: Fixed and variable rate
    - iii. Types of mortgages: Interest only, negative amortization, option ARM, pre-payment penalty, points
    - iv. Advantages and risks of leverage
  - (c) Equity- and debt-financed properties
    - i. Cost of capital and leverage
    - ii. Rent versus buy
    - iii. Corporate real estate
    - iv. Moral hazard and adverse selection
    - v. Valuing properties with senior and mezzanine debt
  - (d) Private equity and partnerships
    - i. Contractual structure
    - ii. Valuing properties with debt, general and limited partners
  - (e) Behavioral finance and real estate
  - (f) Monte Carlo simulations in real estate
  - (g) Real options in real estate
  - (h) Summary: Generating value in real estate
3. Real estate and financial markets
  - (a) Real estate investment trusts (REITs): Valuation, market analysis
  - (b) Securitization
  - (c) Institutional investors
4. Real estate cycles and crises
  - (a) Incentives in the real estate market
  - (b) What caused the Global Financial Crisis? Theories of real estate cycles



## Tentative Course Calendar (Subject to Change)

#	Date	Class topic	Section I (2:20–3:40)	Section II (3:55–5:15)	Assignments
1	1/8/24	Cap rates I			
2	1/10/24	Cap rates II			
	1/15/24	MLK Day	—no class—	—no class—	
3	1/17/24	Valuation I			Valuation I
4	1/22/24	Valuation in practice	*Guest speaker: Jake Wilk Link Logistics	*Guest speaker: Jake Wilk Link Logistics	
5	1/24/24	Valuation II			Valuation II
6	1/29/24	Mortgages I			
7	1/31/24	Mortgages II			Mortgage I
8	2/5/24	Mortgages III			
9	2/7/24	Deal making	*Guest speaker: Frank Kass Continental Real Estate	*Guest speaker: Frank Kass Continental Real Estate	
10	2/12/24	Mortgages IV			
11	2/14/24	Long-term investing	*Guest speaker: Alex Klatskin Forsgate, General Partner	—no class— Watch recording	Mortgage II
12	2/19/24	Midterm I	*Midterm I	*Midterm I	
13	2/21/24	Rent vs buy			
14	2/26/24	Real options I	*Guest speaker: Dr. Jason Black Huntington Bank	*Guest speaker: Dr. Jason Black Huntington Bank	
15	2/28/24	Real options II			Rent vs buy
16	3/4/24	Outside equity I			
17	3/6/24	Outside equity II			
	3/11/24	Spring break	—no class—	—no class—	
	3/13/24	Spring break	—no class—	—no class—	
18	3/18/24	Movie day	—no class—	—no class—	
19	3/20/24	Interview assignment	—no class—	—no class—	Global Financial Crisis
20	3/25/24	Behavioral finance			
21	3/27/24	RE as asset class			Real options + Behavioral
22	4/1/24	REITs			
23	4/3/24	Private equity/REITs	*Guest speaker: Michael Glimcher BGO IREIT, CEO	—no class— Watch recording	



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#	Date	Class topic	Section I (2:20–3:40)	Section II (3:55–5:15)	Assignments
24	4/8/24	Banking	—no class— Watch recording	*Guest speaker: Dr. Tayfun Tuzun Bank of Montreal, CFO	
25	4/10/24	Securitization			Interview assignment
26	4/15/24	Midterm II	*Midterm II	*Midterm II	
27	4/17/24	Global Financial Crisis	—no class— Watch recording	*Guest speaker: Robert Schottenstein M/I Homes, CEO	REITs + Securitization
28	4/22/24	Credit markets	*Guest speaker: Dr. Jeff Meli Barclays, Head of Research	*Guest speaker: Dr. Jeff Meli Barclays, Head of Research	

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\* Mandatory attendance class



## Short bios of guest speakers

1. **Jake Wilk, Link Logistics, Investment Associate:** Jake Wilk is a professional associated with Link Logistics, a company known for its expertise in the real estate sector. He brings a practical perspective on valuation in real estate, drawing on his experience in the industry.
2. **Frank Kass, Continental Real Estate, President:** Frank Kass is a seasoned expert from Continental Real Estate, a firm specializing in real estate development and management. His insights into deal-making in real estate are grounded in years of experience in the field.
3. **Alex Klatskin, Forsgate Industrial Partners, General Partner:** Alex Klatskin is a partner at Forsgate, a company involved in real estate investments. His expertise lies in long-term investment strategies in the real estate market, providing a wealth of knowledge from his tenure in the industry.
4. **Dr. Jason Black, Huntington Bank, Director of Analytic Insights:** Dr. Jason Black, affiliated with Huntington Bank, offers a unique perspective on real estate from the banking sector. His expertise includes financial aspects of real estate and related banking services. Dr. Black holds a PhD in Engineering from the Massachusetts Institute of Technology.
5. **Michael Glimcher, BGO IREIT, CEO:** Michael Glimcher is the CEO of BGO IREIT, bringing executive-level insights into real estate investment trusts (REITs) and the intersection of real estate with financial markets.
6. **Dr. Tayfun Tuzun, Bank of Montreal, CFO:** Dr. Tayfun Tuzun, serving as the CFO of Bank of Montreal, has extensive experience in banking and finance, providing a nuanced view of the banking sector's role in real estate finance. Dr. Tuzun holds a PhD in Economics from the Ohio State University.
7. **Robert Schottenstein, M/I Homes, CEO:** Robert Schottenstein, the CEO of M/I Homes, offers a comprehensive view of the housing market and real estate development, backed by his leadership experience in one of the leading homebuilding companies.
8. **Dr. Jeff Meli, Barclays, Head of Research:** Dr. Jeff Meli, leading the research division at Barclays, brings a research-oriented approach to real estate and credit markets, combining academic insights with practical financial expertise. Dr. Meli holds a PhD in Finance from the University of Chicago.