NORTHWESTERN UNIVERSITY
Kellogg School of Management

Real Estate Technology – REAL-930-5
How Technology Is Used In and Effects The Use Of Real Estate

Global Hub - Thursday 6:30 PM to 9:30 PM

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Course Syllabus – Spring 2020

Course Description

The real estate landscape is rapidly changing from the impact of technology. In the past several years, we have seen major impacts from AirBnb on lodging, and WeWork in office. The continued growth of e-commerce has turned retail upside down but has also presented opportunities in the industrial segment. Clean energy and energy management have seen major advances, and sustainability is a big issue for real estate developers.

Real estate is the largest asset sector, with roughly $45 trillion in commercial and residential real estate value in the US. This asset class has been slow to adopt technology and has favored sticking with traditional methods of doing business. Technology has finally made a dent in an industry that has operated the same for nearly half a century.

This half credit course will expose students to the current impacts of technology in real estate. Students need to prepare themselves for real estate technology opportunities as the landscape is rapidly changing. Topics will include i) how a real estate VC analyzes new tech opportunities, ii) AI applications for real estate, iii) how e-commerce has disrupted retail and industrial, iv) the emergence of prefabrication and modular technologies for development and v) the impacts of clean energy.

Prominent guest speakers will provide in-depth insight on these topics. In addition to the highlighted areas, the class will have additional case studies on real estate technology concepts currently in the market. The Final will be a write-up of an existing technology picked by students and providing an analysis of how that tech concept will make in impact.

Students are expected to arrive on-time and be fully prepared for each class. Phones or laptops will not be allowed in class.
Pre-requisites

The class is geared for students who have some experience in real estate as we will cover various topics relating to investments and development. Real estate knowledge is not required. All students should read the Real Estate Primer (in Readings) and complete the take-home exam prior to the first class. There will be a discussion of this during the first class.

Schedule Overview

- Thursday, April 2: **Venture Capital and Emerging Real Estate Tech Companies**  
  - **Deliverable** – Complete pre-requisite take home exam (due by 6pm on 4/1/20)  
  - **Speaker**  
    - Brad Greiwe *Co-Founder* Fifth/Wall

- Thursday, April 9: **Disrupting Real Estate Development**  
  - **Case Study #1**: BoKlok  
  - **Speakers**  
    - Fritz Wolff – *Co-Founder* Katerra  
    - Jeff Johnson – *Board Member* Prescient, *Managing Partner* Helm

- Thursday, April 16: **Artificial Intelligence in Real Estate**  
  - **Case Study #2**: Accor  
  - **Speakers**  
    - Elliot Burris – *Founder* Dynasty.com

- Thursday, April 23: **Disruption of Retail and Opportunities for Industrial**  
  - **Case Study #3**: WeWork  
  - **Speakers**  
    - Nick Severino – *CFO* Philz Coffee, *former CFO* Apple Retail  
    - Doug Kiersey – *President* Dermody Properties

- Thursday, April 30: **Clean Energy in Real Estate**  
  - **Deliverable** – Technology for the Future of Real Estate (Final Project)  
  - **Speakers**  
    - Mark Oei – *Founder* Redwood Coast Capital

Readings, Case Study and Venture Pitches

- **Weekly Readings**  
  - Required and recommended weekly readings are posted on Canvas and should be completed in advance of the class for which they are assigned.

- **Case Study**  
  - There will be 3 Cases assigned and will be located on Canvas. Students will submit a write-up of the cases prior to class.

- **Final Project**  
  - Each group will choose a technology that they believe will make a material impact to real estate. The Final should include an analysis of the technology, a discussion of how it currently applies, the potential for growth and a recommendation of how this tech/company should position itself for success.
Course Evaluation
- Pre-Requisite Exam (5%)
- Class Participation (25%)
- Case Studies (40%)
- Final Project (30%)

Case Studies
1. BoKlok due by 6pm on 4/9/20
2. Accor due by 6pm on 4/16/20
3. WeWork due by 6pm on 4/23/20

Final Project
Each team will have to research a real estate tech concept/company and submit an analysis of how it will impact the real estate industry. This will be submitted by 6pm on April 29. Feedback will be provided in writing around the end of the quarter.

Class Participation
- Excellent participation means that you have been on time to all classes and team meetings, have volunteered valuable comments, and have answered questions when the opportunity arises. Students to consider valuable comments being ones of quality instead of quantity.
- Good participation means that you have mostly been on time or missed only a little time, you have occasionally volunteered comments, and have sometimes answered questions posed. Many of your classmates are aware of your participation and approve of it.
- Poor participation means either that you have missed noticeable amounts of class time, team meetings, are coming in late and disrupting, and/or are unprepared to discuss the materials.

Team member evaluation
You are required to submit a completed Team-Member Evaluation Form via email to the instructor by Midnight May 8th. If you fail to comply, you will receive an “incomplete” in REAL 930-5. The evaluation, covered by the Kellogg Honor Code, may affect the final grade of your peers and yourself. You should take seriously the responsibility of honestly evaluating each team member’s contribution to the success of the Team Project. Elements to consider in your team member evaluation include individual effort, originality, expertise, sophistication, and overall Team contribution.

Class Etiquette
The Kellogg Code of Classroom Etiquette has been established, and revised to reflect the experiential learning environment, to assist student and faculty alike to foster appreciation for the learning environment that enhances the learning experience for all students. Attention to the code will add value to the course by creating a more meaningful and constructive discussion. Students, therefore, are expected to demonstrate etiquette based on the following principles:
- Attendance: Students are expected to attend every class throughout the term. When unable to attend, the student should notify the professor in advance.
- Punctuality: Students are expected to arrive on time.
- Exiting and Entering: Students are expected to remain in the class or meeting for its duration. If a student must depart early due to unavoidable circumstances, the student should inform the instructor
prior to the event. Leaving and re-entering the class or meeting is not permitted, except in an emergency.

- **Disruptive Behavior**: Students should demonstrate respect for the class and therefore, should refrain from distracting behavior such as disruptive eating, using laptops to surf the Web or check e-mail and holding side conversations.
- **Cell Phone and Laptop Use**: Cell phone use is prohibited during class or meetings. Laptop use is prohibited except for presenting or with instructor’s approval.

**The Kellogg Honor Code**
All students enrolled in this course agree to abide by the Kellogg Honor Code. The Kellogg Honor Code governs student conduct pertaining to all academic, placement, and extracurricular activities associated with the Kellogg School of Management. Each student agrees not to seek an unfair advantage over other students, including but not limited to giving or receiving unauthorized aid during completion of academic requirements;
- to truthfully represent fact and self at all times;
- to respect the property and personal rights of all members of the Kellogg community; and
- to uphold the Kellogg Honor Code by reporting all material violations, and by fully cooperating with and protecting confidentiality of any Honor Code proceedings.

**Course Outline**

- **Class 1: Venture Capital and Emerging Real Estate Tech Companies**
  - Agenda
    - Class Introduction
    - Real Estate Technology Landscape
      - Guest Speaker: Brad Greiwe *Co-Founder* Fifth/Wall
  - Main Topics
    - VC and Real Estate Technology
    - The changing landscape of how traditional real estate is utilizing technology
  - Assignments
    - Deliverable – Pre-requisite take home exam (due by 6pm on 4/1/20)
    - Reading
      - JP Morgan – Real Estate Tech History and Current State
      - CB Insights – Fintech Trends (Optional)
      - CREDA – White Paper (Optional)

- **Class 2: Disrupting Real Estate Development**
  - Agenda
    - How to address the issue of affordable housing?
    - BoKlok Case
    - Impact of modular construction
    - Guest Lecturers
      - Fritz Wolff – *Co-Founder* Katerra
      - Jeff Johnson – *Board Member* Prescient, *Managing Partner* Helm
  - Main Topics
    - Innovation in real estate construction and why it was long overdue
    - Applying a consumer technology manufacturing mindset to real estate development
    - Operations optimization and supply chain for real estate construction
Assignments
- Deliverable – BoKlok case write-up (due prior class)
- Reading – BoKlok case, TBD

Class 3: Artificial Intelligence in Real Estate
- Agenda
  - How a lodging company responds to AirBnb
  - Accor Case
  - AI effects on real estate
  - Guest Lecturers
    - Elliot Burris – Founder Dynasty.com
- Main Topics
  - What is AirBnb doing to global lodging patterns?
  - Is AI for real in real estate?
  - What types of jobs in real estate will be replaced by machine learning?
- Assignments
  - Deliverable – Accor case write-up (due prior class)
  - Approved company for final project
  - Reading – Accor case, TBD

Class 4: The Impact of e-Commerce on Retail and Industrial
- Agenda
  - Breaking down WeWork
  - WeWork Case
  - Guest Lecturers
    - Nick Severino – CFO Philz Coffee, Former CFO of Apple Retail
    - Doug Kiersey – President Dermody Properties
- Main Topics
  - WeWork case
  - Retail channels and the new industrial channel
- Assignments
  - Deliverable – WeWork case write-up (due prior class)
  - Reading – WeWork case, TBD

Class 5: Clean Energy
- Agenda
  - How can the real estate industry encourage clean energy practices?
  - Example of a solar investment
  - Class discussion of Final Project findings
  - Lecturer
    - Mark Oei – Founder Redwood Coast Capital
- Main Topics
  - Energy is a big part of real estate. What can be done about it?
  - Showcasing how a commercial solar deal is structured
  - Tech concepts for the future
- Assignments
  - Deliverable – Final Project (due prior class)
  - Reading – TBD