Course Syllabus – Spring 2019

Course Description

Real estate is the largest asset sector, with approximately $45 trillion in commercial and residential real estate value in the United States. Over the past two decades, institutional investors have increased their allocations to real estate and this is expected to continue. “Real Estate” has recently been added as a distinct investment sector in the Global Industry Classification system.

While the fundamental securities in the financial markets are stocks and bonds, the fundamental securities in real estate are individual properties. With the exception of REIT’s, real estate is generally illiquid and transactions, while often part of public record, occur infrequently. Comprehensive historical data sets exist for public securities, but real estate has lagged behind, both in terms of property data and building technology. Data collection has been done piecemeal, by different entities in a variety of non-compatible formats, resulting in fragmented online marketplace and asset management systems.

Technology has carried over into the traditional real estate sector with various new companies “disrupting” the status quo. Well known players such as AirBnb and WeWork have single-handedly changed lodging and office markets. There are numerous newer entrants that are looking to disrupt construction, leasing, financing and traditional retail channels.

Real estate students, upon entering the industry, will require a sense of the real estate technologies that will transform the industry over the next 10 years. It could range from artificial intelligence being applied to residential leasing, to how Apple will utilize the traditional retail sales channel in a time when retail shops have become displaced by e-commerce. The impact of technology in real estate has gained momentum and will continue to drive innovation.

Significant capital and resources are getting deployed into real estate technology. Jones Lang LaSalle is launching a global venture fund targeting real estate technology startups and aims to link them with developers. Fifth Wall Ventures, an early mover in real estate technology venture investing, recently raised their second fund.

This half-credit course will expose students to current technology trends that are impacting or disrupting the real estate sector. Topics will include i) new AI’s applications for real estate management, ii) analyzing the effectiveness of traditional retail channels, iii) the business model of the modern data center, iv) how
prefabrication and modular technologies are disrupting real estate development and v) how advances in technology along with government subsidies are turning solar energy into a viable investment. Prominent guest practitioners will provide in-depth insight on each of these topics and discuss which technologies are making an impact. The class will be structured around a series of readings, case studies on specific companies or technologies that are pushing the envelope of real estate, and a group business venture pitch in the real estate technology arena. Students should be prepared to engage in active dialogue as the class will be run similar to a professional investment firm. Therefore, students should arrive on-time and prepared, not use their phone in class, and use their laptops only for notes or presentation purposes.

**Schedule Overview**

- **Wednesday, April 3: Class #1 – Impact of Artificial Intelligence in Real Estate**
  - Deliverable – Real Estate Technology Venture Write-up (due prior to class)

- **Wednesday, April 10: Class #2 – How Technology Firms View the Traditional Retail Channel**
  - Deliverable – Retail Case Study (due prior to class)

- **Wednesday, April 17: Class #3 – Data Centers and the Infrastructure of the Internet**
  - Deliverable – First Draft of Venture Pitch (due prior to class)

- **Wednesday, April 24: Class #4 – Disrupting Real Estate Development**

- **Wednesday, May 1: Class #5 – Solar Investing and Final Venture Pitch**
  - Deliverable – Final Venture Pitch

**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:** A retail case study is located in the required course packet. To download the course packet, go to the following site: https://www.study.net/kellogg. Once you’ve downloaded the case, you may print a hard copy for your use only.
- **Venture Pitches:** Material to support each group’s crafting of a business venture pitch will be posted on Canvas.

**Course Evaluation**

- Class Participation (25%)
- Case Study/Venture Pitch (35%)
- Group Presentation (40%)

**Case Study**

Each group will be responsible for analyzing the potential store opening for a technology retailer. Students should consider the value a physical retail presence has to retailers. Answers to the Case Study questions (posted on canvas) must be submitted by each student on blackboard ahead of the class for which they are due. Each group should prepare a PowerPoint presentation highlighting the key drivers and themes.
Two groups will be chosen to present their analysis in front of the class, using PowerPoint presentations of no more than 10 slides. Presentations should be not more than 5-8 minutes, with 5 minutes afterward for Q&A with Nick Severino (CFO – Apple Retail).

**Venture Pitch**
Each team will have to formulate a concept within real estate technology and provide an investment committee-style presentation deck. The presentation portion should highlight the key factors and will take the form of an investment committee.

**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: Impact of Artificial Intelligence in Real Estate
  o Agenda
    - Class Introductions
    - Real Estate Technology Landscape
    - Students Present new Real Estate Technology Concepts
    - How to prepare a Venture Pitch
    - Guest Lecturer: Elliot Burris – Founder of Dynasty.com
  o Main Topics
    - The changing landscape of how traditional real estate is utilizing technology
    - AI in real estate. How is it being applied and the challenge of algorithm optimization.
    - What types of jobs in real estate will be replaced by machine learning?
  o Assignments
    - Deliverable - Prior to class each student should submit on canvas one paragraph about an area of real estate and technology that interests them. Come prepared to say a few words on your topics.
    - Readings – AI and Real Estate Tech
    - Company Research – Dynasty, Skyline, Proportunity, Enodo, Rex, Okapi

• Class 2: How Technology Firms View the Traditional Retail Channel
  o Agenda
    - Reviewing how e-commerce has substantially displaced the retail channel
    - Guest Lecturer: Nick Severino – CFO of Apple Retail
    - Case Study Presentation
  o Main Topics
    - How does a leading technology company view the traditional retail channel? What opportunities arise when the current retail sector is undergoing drastic transformation?
    - How has the supply chain changed in retail?
    - Analyze the feasibility parameters of opening a new retail storefront.
  o Assignments
    - Deliverable – Group retail case study
    - Reading – Retail
    - Company Research – Apple, Amazon, Leap, eLocations, LocateAI
• **Class 3: Data Centers and the Infrastructure of the Internet**
  o Agenda
    - Evaluating the vast infrastructure of the internet.
    - Guest Lecturer: Scott Peterson – Former Chief Investment Officer of DLR
    - Groups Present First Draft of Venture Pitch
  o Main Topics
    - Understanding the data center industry and future opportunities within it.
    - How is the infrastructure of the internet coping with the growth in cloud, AI, self-driving cars, big data and other demand drivers?
    - Structuring your business to scale and grow in international markets.
    - Evolving your business model to adapt to constant changing technologies.
  o Assignments
    - **Deliverable** – Prepare first pass at a venture pitch
    - Reading – Data Centers
    - Company Research – DLR, CBRE Global Investors, GI Partners, Equinix, Global Switch

• **Class 4: Disrupting Real Estate Development**
  o Agenda
    - Analyzing new tech in old real estate mindsets.
    - Guest Lecturer: Fritz Wolff – Co-founder Katerra
  o 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.
    - Showcasing the growth of modular development and the drivers of value.
  o Assignments
    - Reading - Modular Design and Construction
    - Company Research – Katerra, Prescient, Blu Homes, Kasita, CitizenM, Polcom

• **Class 5: Solar Investing and Final Venture Pitch**
  o Agenda
    - Solar Investing
    - Venture Pitches to Mark Oei and Guest Judge
  o Main Topics
    - Advancements that are helping the solar industry evolve.
    - Financing and deal structuring for commercial solar.
    - Understanding what a venture investor looks for in a real estate tech pitch.
  o Assignments
    - **Deliverable** – Submit and present final venture pitch
    - Reading – Solar
    - Company Research – First Solar, Nextera Energy, SolarCity (Tesla Energy), SunPower