



[90-748 Real Estate Development]

Meeting Days, Times, Location: [Wednesday, 6:30pm-9:30pm, Pittsburgh]

Semester: [Fall], **Year:** [2024]

Units: [6], **Section(s):** [A2]

HBH 1007

In person expectation

Instructor information

Name Thomas Link, Chief Development Officer, Urban Redevelopment Authority of Pittsburgh

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Course Description

Critical to the economic development professional's toolkit is understanding how and why real estate is developed: what motivates private real estate development, how real estate development is financed, market drivers and the context by which private real estate developers and financiers operate, and the role of public policy and public financing in achieving desired public outcomes.

In this class, you will explore the real estate development process, the context by which real estate is developed, valuation and financing methodologies, and the role of the public in supporting private real estate development through a combination of lecture, discussion, and guest speakers.

You will have fun building your real estate toolkit. You will meet and learn from practicing real estate development professionals (including me!) and explore real world real estate developments. From main streets to downtown office towers, you will gain a new appreciation and insight into how the places you live, work, and play came to be. Your learning will be assessed through individual take-home assignments, a group case study, class participation, and an in-class presentation. While there are no specific prerequisites for this course, you should have basic Excel modeling skills and basic understanding of finance.

Learning Objectives

When you have completed this course, you will be able to:

- Utilize Floor Area Ratio and leasable square feet calculations to develop a real estate program.
- Calculate Net Operating Income (NOI)
- Apply valuation methodologies and concepts to real world real estate development.
- Perform supportable debt analysis to build a real estate financing capital stack utilizing Net Operating Income and real estate valuation methods.
- Create a pro forma real estate cash flow model, analyze economic returns and recognize key drivers and inputs to your pro forma model.
- Articulate the role of the public in real estate development and critically analyze the appropriateness and application of a variety of public real estate financing tools and methods-- including understanding real

estate financing 'gaps.'

- Apply your newly acquired skill set and tool box to examine a real estate development opportunity and recommend (in writing and oral presentation) a development program, financing capital stack (including any public financing), pro forma model, economic returns. to a faux board of investors.

Learning Resources

- Textbooks:
 - OPTIONAL Professional Real Estate Development, Principals and Process, Fourth Edition, Mike E. Miles, Gayle L. Berens, Mark J. Eppli, Marc A. Weiss, Urban Land Institute
- Software: Excel
- You are encouraged to read real estate periodicals such as ULI Magazine, Business Times, New York Times Real Estate section, Wall Street Journal, Pittsburgh Post Gazette, broker publications such as CBRE, Colliers, and others on your own. Regularly reading about real world real estate issues in the public press will help students build a mind set and framework as to their study and analysis of real estate development. Public press clippings may be assigned from time to time to supplement your learning. You will choose a real estate topic reported on in the public press to lead a brief discussion during some classes.

Assessments

The final course grade will be calculated using the following categories:

Assessment	Percentage of Final Grade
Individual take home assignments 1. FAR (Floor Area Ratio), efficiency, rentable square feet calculations.	15%
Individual take home assignments 2. Supportable Debt Analysis and building a financing capital stack utilizing Net Operating Income and real estate valuation methods- 1-2 page Written response with supporting materials.	15%
Individual take home assignments 3. Pro forma real estate cash flow model exercise using Excel and complete economic return analysis- Excel spreadsheet with 1-2 page Written response.	15%
Midpoint quiz: Graded in class quiz on key concepts.	10%
Group Case study: Real Estate Development Opportunity analysis and recommendation. Written report with supporting materials (including Pro Forma model, Economic return	25%

analysis, Financing Capital stack, Market analysis, recommendation) and Oral presentation.	
Attendance and participation	20%

Individual take-home assignments:

Through the course you will receive 3 take-home written assignments. These assignments will assess your mastery of certain technical aspects of real estate development, including:

1. FAR (Floor Area Ratio), efficiency, rentable square feet calculations.
2. Supportable debt analysis and building a financing capital stack utilizing Net Operating Income and real estate valuation methods.
3. Real estate pro forma modeling using Excel and economic return analysis.

Each assignment will be completed individually and must be turned in on time (see late work policy). Generally, each assignment will be a 1-2page written memorandum, Excel model (if necessary) and any supporting materials.

You must complete these assignments to have the opportunity to receive full credit for this portion of your grade.

Attendance and Participation:

Real estate development professionals actively engage in creative and technical discussion with a myriad of stakeholders and professionals daily. This personal interaction is critical to the real development process. Interaction among students, me, and guest speakers are valuable elements of the learning experience for this class. Therefore, attendance and participation are worth 20% of the total grade; each unexcused absence will result in a deduction of 5% of your overall grade.

Participating means that you will:

- Attend class.
- Arrive to class on time.
- Engage thoughtfully in class discussions.
- Lead (with a small group) at least one 20-30 minute class discussion on a real estate development issue reported in the public press.

In the case of special circumstances -- such as a doctor excused illness, observation of a religious holiday, or personal emergency- an absence will be excused.

Please make every effort to be on time for class. A pattern of unexcused tardiness (more than one) may negatively affect your overall assessment.

Please let me know in advance if you know you are going to miss class or need to be tardy.

Midpoint Quiz

Midway through the course students will take a graded quiz / brief exam on key concepts.

Group Case Study:

A Group Case Study will be distributed. Depending on enrollment, the Group Case study will be completed by teams of 3-5 students.

The Group Case Study requires you to apply the skills acquired through the class in a loosely defined real estate development scenario to a faux board of investors. You will work in a group and be graded as a group.

Each Group will be required to provide a one-page description of the case and brief outline of what the team is proposing to deliver. This will not be graded - but will serve as a checkpoint to help ensure you are on track to

complete the Case Study.

Minimum elements of the Case Study will include:

- Development program and budget -including FAR and rentable/leasable square foot calculations.
- Pro forma cash flow model
- Valuation analysis utilizing Net Operating Income and real estate valuation methodologies
- Recommended financing capital stack
- Articulation of potential economic returns
- Articulation and analysis of risk factors
- Recommend investing or not investing investor equity to proceed.

The Case Study will be presented in both a written and oral report. Each member of the team is required to present some portion of the oral report. Teams are encouraged to be creative and think beyond the classroom in support of their study. However, the minimum technical elements above must be included in the study.

Grading Policies

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Grade	Percentage Interval
A+	97%+
A	92-96%
A-	90-91%
B+	87-89%
B	82-86%
B-	80-81%
C+	77-79%
C	72-76%
C-	70-71%
D/R	Failing
I	Incomplete

- **Late-work policy:** Late work will not be accepted and will not earn credit except in the case of special circumstances -- such as a doctor excused illness or personal emergency. Written documentation as to the need for an extension must be presented to me in advance of the due date for consideration.
- **Re-Grading:** Work will not be re-graded unless I as professor determine that a grade for an assignment was incorrectly arrived at my sole discretion.

Course Policies

- **Academic Integrity & Collaboration:** Please review CMU's Academic Integrity Policy carefully (<http://www.cmu.edu/policies/student-and-student-life/academic-integrity.html>). You will be held accountable for any violations that come to my attention.

Collaboration

I encourage you to speak to each other! Real estate is a fun topic-- talking about what you are observing in the real world, public press and topics we have covered in class is an important part of the learning process. In real world practice, real estate development is a collaborative endeavor.

However, other than the Group Case Study and the small group led class discussion, all individual take home assignments must be completed individually. You may collaborate on individual take home assignments-- but you must declare in writing who you collaborated with and describe the nature of your collaboration.

- **Accommodations for disabilities:** Carnegie Mellon University is committed to providing reasonable accommodations for all persons with disabilities. If you have a disability and require accommodations, please contact the Office of Disability Resources access@andrew.cmu.edu. If you have an accommodations letter from the Disability Resources office, I encourage you to discuss your accommodations and needs with me as early in the semester as possible. I will work with you to ensure that accommodations are provided as appropriate.
- **Statement on student wellness:** Please remember to take care of yourself. Everyone experiences difficult times and it important to seek help when you need it. As a student, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. CMU services are available, and treatment does work. You can learn more about confidential mental health services available on campus at: <http://www.cmu.edu/counseling/>. Support is always available (24/7) from Counseling and Psychological Services: 412-268-2922. Please utilize these resources in case of crisis:

Re:solve Crisis Network: [888-796-8226](tel:888-796-8226)

If the situation is life threatening, call the police

On campus: CMU Police: [412-268-2323](tel:412-268-2323)

Off campus: 911

- **We must treat every individual with respect.** We are diverse in many ways, and this diversity is fundamental to building and maintaining an equitable and inclusive campus community. Diversity can refer to multiple ways that we identify ourselves, including but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Each of these diverse identities, along with many others not mentioned here, shape the perspectives our students, faculty, and staff bring to our campus. We, at CMU, will work to promote diversity, equity and inclusion not only because diversity fuels excellence and innovation, but because we want to pursue justice. We acknowledge our imperfections while we also fully commit to the work, inside and outside of our classrooms, of building and sustaining a campus community that increasingly embraces these core values. Each of us is responsible for creating a safer, more inclusive environment.

Unfortunately, incidents of bias or discrimination do occur, whether intentional or unintentional. They contribute to creating an unwelcoming environment for individuals and groups at the university. Therefore, the university encourages anyone who experiences or observes unfair or hostile treatment on the basis of identity to speak out for justice and support, within the moment of the incident or after the incident has passed. Anyone can share these experiences using the following resources:

- **Center for Student Diversity and Inclusion:** csdi@andrew.cmu.edu, (412) 268-2150
 - **Report-It online anonymous reporting platform:** reportit.net username: *tartans* password: *plaid*
- All reports will be documented and deliberated to determine if there should be any following actions. Regardless of incident type, the university will use all shared experiences to transform our campus climate to be more equitable and just.

- **Mobile Devices:** Interacting with me, other students, and guest speakers is an important part of the learning process. Use of mobile and/or electronic devices such as a mobile phone, tablet, and/or laptop during class should be limited to aiding student learning.
- **Student Recording of Class** Students are welcome to record class. For this course, I will be recording class sessions and making them available to you for your personal, educational use. Recordings of class sessions are covered under the **Family Educational Rights and Privacy Act (FERPA)** and must *not* be shared with anyone outside your course-section. The purpose of these recording is so students in this course (and only students in this course) can watch or re-watch past class sessions. Feel free to use the recordings if you would like to review something we discussed in class or if you are temporarily unable to attend class.
- **Contacting me:** Please contact me with any questions on any aspect of the class. The best way to reach me is via email and, if necessary, via text or voice to my mobile phone. I will do my best to respond as quickly as I can, understanding that I may not immediately respond. Generally, I will try to respond within 24 hours.
- **Classroom Expectations Related to COVID** Please refer to the University's COVID-19 website for policies and updates regarding COVID-19 <https://www.cmu.edu/coronavirus/students/index.html>
- **Heinz College Student Handbook** Please refer to the Heinz College Student Handbook for all Heinz College and University Policies and Expectations chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.heinz.cmu.edu/heinz-shared/_files/img/student-handbooks/heinz-college-student-handbook.pdf

Course Schedule- Tentative and subject to change.

Date	Theme/Topic	Learning Outcomes Addressed	Assignments Due
10/23/2024	Real Estate: Introduction & Key Concepts	Key topics: <ul style="list-style-type: none"> · Class parameters / Syllabus review · Framework for real estate development analysis · Market drivers/trends and context that drive real estate development · Players involved-focus on Private Developer · Development Phases · Intro to key real estate concepts: <ol style="list-style-type: none"> 1) Entitlements and Density 2) Development Program 3) Development Budgeting 4) Value: NOI 5) Capital Stack 6) Economic Returns 7) Feasibility Analysis 8) FAR/Development Budgeting/NOI/ Capital Stack/Sources & Uses/Measures of return Introduction to Case Study	n/a
10/30/2024 Development Site visit: TBD	Real Development Program and Budget: Users	Guest Speaker : n/a Key topics: <ul style="list-style-type: none"> · Introduction to case study / Guest speakers Property Types	Textbook reading and public press reading as assigned.

	& Property types. What can you build and how much will it cost?	<ul style="list-style-type: none"> · Idea / Opportunity to Development Program · Development Program: entitlements/FAR, Efficiency, Rentable sf, · Development Budget: Hard & Soft costs, Tenant Improvement · Sources & Uses 	
11/06/2024	NOI: Building Block of Real Estate Finance & Valuation Real Estate Finance: Supportable Debt and the Capital Stack	<p>Guest Speakers: James Eash, ACTION Housing Case Study Group work</p> <p>Key topics:</p> <ul style="list-style-type: none"> · Net Operating Income · Income & Expenses · Cap Rate · Real Estate Valuation · Supportable Debt analysis 	<p>Textbook reading and public press reading as assigned.</p> <p>Individual take home assignment #1 due: FAR, efficiency, rentable square feet calculations.</p>
11/13/2024	The Real Estate Pro Forma and returns on investment.	<p>Guest Speakers: Tim White & Nathan Clark</p> <p>Key topics</p> <ul style="list-style-type: none"> · Pro Forma modeling · Discounted Cash Flow analysis · Return on investment metrics: NPV, IRR, cash on cash · Economic feasibility 	<p>Textbook reading and public press reading as assigned.</p> <p>Individual take home assignment #2 due: Supportable debt analysis utilizing Net Operating Income and real estate valuation using Cap Rate</p>
11/20/2024	Public role in real estate development: when and why does the public participate in real estate development?	<p>Key topics</p> <ul style="list-style-type: none"> · Economic infeasibility / risk · Real Estate financing gaps · Role of public financing tools and strategies · Public Financing tools <p>Guest Speaker: Mark Popovich</p> <p>Midpoint Quiz on key concept</p>	<p>Textbook reading and public press reading as assigned.</p> <p>Case study checkpoint (not graded).</p> <p>Individual take home assignment #3 due: Real estate pro forma modeling using Excel and economic return analysis.</p>
12/4/2024	Final	Group Case Study presentations.	Group Case study: Real

	Presentations/ Wrap Up	Guest audience—URA, Investor, Real Estate Developer FINAL SUBMISSIONS DUE 12/15	Estate Development Opportunity analysis and recommendation
12/11/2024	Final Submissions Due		
ALL	<p>Some classes will start with a 20-30 minute group discussion on real estate trends—utilizing industry and media publications we will discuss what we are observing in the marketplace.</p> <p>Lectures will be supplemented by guest speakers and a site tour.</p> <p>Pre-recorded lectures may be utilized from time to time in place of in class lectures.</p>	<p>Please note that there is no lecture the week of Thanksgiving 11/27/2024 A non mandatory site visit will be incorporated to supplement in class learning.</p>	