

MBAX 6630 - Real Estate Economics

Instructor: Professor Stephen Billings
Office: Koelbel 443
Office Hours: M 4-6pm, and by appointment.
Phone: (Office) TBD
Email: stephen.billings@colorado.edu

Description and Objective:

The course begins with an overview of residential and commercial property markets. We will identify the underlying economic determinants of real estate supply and demand, market equilibrium and short- and long-run adjustments to disequilibrium (e.g. cycles). The course then describes the three major approaches to estimating real property value: market (or sales) comparison, the income approach, and the cost approach. These techniques will be used to estimate market values for both residential and commercial properties.

The course will then examine real estate market behavior. We will examine various theories of land price determination and use these models to understand how the private market allocates land to competing residential, office, retail, industrial/warehouse, hotel and other end users. This course draws heavily from topics taught in traditional urban and regional economics courses and treats real estate like any other scarce resource allocated in a market oriented economy. The student will examine how factors influencing the demand for real estate interact with the factors influencing the supply of real estate to determine market rents and how the flow of future expected income is capitalized to yield the market price of the property. The course will also examine the roles that local, state and federal governments have in real estate market outcomes.

Finally, the course includes an examination of four special topics: affordable housing, resort markets, transit oriented development, and sustainable real estate.

Materials:

1. Required Text
 - 1) *Urban Economics and Real Estate*. *McMillen and McDonald*. 2nd edition. 2010. ISBN-13: 978-0470591482
 - 2) *Income Property Valuation*, by Jeffrey D. Fisher and Robert S. Martin (FM), 3rd Edition, Dearborn Financial Publishing, Inc. 2009.

Course Requirements and Grading:

1. Eight homework assignments each worth 12.5% of your course grade. Depending on course schedule, I reserve the right to decrease the number of homework assignments and reweight accordingly.

Accommodation for Disabilities:

If you qualify for accommodations because of a disability, please submit a letter from Disability Services to Professor Billings in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) and discuss your needs with Professor Billings.

Religious Observances:

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Please contact Professor Billings if a course requirement conflicts with a religious observance.

Classroom Behavior:

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. The University of Colorado Boulder (CU Boulder) is committed to maintaining a positive learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU's Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU Boulder's Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the [OIEC website](#).

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the [academic integrity policy](#) of the institution. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at honorcode.colorado.edu.

Communication:

Class schedule is subject to change and assignment due dates will be announced at least one week prior to when the assignment is due. Notification can take the form on an in-class announcement, email or Desire2Learn. All students are expected to regularly attend class and check course email and website.

Schedule of Classes, Course Outline and Assignments

Class Meeting 1: Tuesday, August 23rd, 2016

- 1) Course Overview (The Syllabus)
- 2) Class Expectations - Assignments
- 3) What is Urban Economics and its role in Land Markets? (What is Urban Economics.pptx)

Class Meeting 2: Thursday, August 25th, 2016

A. Economic Fundamentals: US Population and Employment

1. Facts and Figures: prices, the existing stock, new construction (ch2 pop and housing .ppt)

Reading) Pitkin & Myers Article (US Housing Trends..)

Class Meeting 3: Tuesday, August 30th, 2016

2. Residential Demand and Supply Drivers (population, households, income, preferences, and expectations) (ch2 pop and housing.ppt)
3. Go over tenure.xls spreadsheet

Class Meeting 4: Thursday, September 1st, 2016

B. Real Estate Markets - Theory (real estate markets.ppt)

1. Go over example of simple demand/supply analysis (ExampleForecastSupplyDemand.xlsx)

Assignment #1: Macroeconomic Analysis of the US Housing Market

Class Meeting 5: Tuesday, September 6th, 2016

C. Commercial Property Markets

1. Trends
2. Cycles
3. Boulder Employment (boulder study.ppt)

Class Meeting 6: Thursday, September 8th, 2016

D. Employment Growth (employment_growth.pptx)

1. Economic Base Analysis

2. Amenity Migration
3. Plant Relocation
4. A Little History: The Market for Office Space in Dallas
5. Forecasting Demand

Assignment #2: Employment Growth

Class Meeting 7: Tuesday, September 13th, 2016

6. Project Level Economic Impact Analysis (Economic Impact Analysis.ppt)

Class Meeting 8 & 9: Thursday, September 15th, 2016 & Tuesday, September 20th, 2016

- A. Bid-Rent Model/Monocentric City
Reach Chapters 6 and 7 of MM

Assignment #3: Bid Rents

Class Meeting 10: Thursday, September 22nd, 2016

- B. Agglomeration Economies

Class Meeting 11: Tuesday, September 27th, 2016

IV. Valuation Techniques

- A. Market (or Sales) Comparison
 1. Identify Comparable Properties
 2. Non-real estate adjustments
 3. Financing adjustments
 4. Marking Property Values to Market (the temporal adjustment)
 - a. Hedonic House Price Indices
 - b. Repeat Sales House Price Indices

Sales Comparison Example – Property in Boulder, CO

Class Meeting 12: Thursday, September 29th, 2016

5. Estimating Implicit Prices: Making Adjustments for Differences in Important Property Characteristics
 - a. Paired Sample
 - b. Regression Analysis
 - i. \$ vs. % adjustments
 - ii. Valuing proximity externalities
6. Price Comparable Properties as if they were the Subject Property
7. Estimate the Market Value of the Subject Property by Taking a Weighted Average of Adjusted Comparable Values
 - a. Single-family property

- b. Multifamily property

Assignments:

- 1. Read Chapters 1, 2, 3 and 12 of FM and the Maxwell_Appraisal.pdf.
- 2. Assignment #4: Market Comparison Approach to Value

Optional reading: “Hedonic Pricing Models: A Selective and Applied Review,” by Stephen Malpezzi.

Class Meeting 13: Tuesday, October 4th, 2016

- B. The Income Approach
 - 1. Overall Capitalization
 - a. Stabilized NOI
 - b. The Cap Rate
 - i. Market determined cap rate and credit spreads
 - ii. Relationship between cap rates and discount rates
 - 2. Discounted Cash Flow Valuation
 - a. Property CFs
 - b. Equity CFs
 - 3. Capital markets

Assignments:

- 1. Read Chapters 6, 7, 8 and 19 of FM.
- 2. Assignment #5: The income approach to value.

Class Meeting 14: Thursday, October 6th, 2016

- C. The Cost Approach and Highest and Best Use
 - 1. Infrastructure costs
 - 2. Building costs
 - a. Cost New
 - i. Types of cost
 - ii. Building cost indices
 - b. Adjusting for Depreciation
 - i. Physical
 - ii. Functional
 - iii. Economic
 - c. Single Family Construction Costs
 - d. Commercial Property Construction Costs
- D. RS Means CostWorks®
- E. Land Valuation
 - 1. Site Attributes
 - a. physical
 - b. location
 - c. government/legal
 - 2. Valuation Techniques
 - a. Sales Comparison

- b. Extraction Method
 - c. Development Approach
 - d. Land Residual
- F. Highest and Best Use

Assignments:

Read Chapters 4, 13 and 14 of FM.

Assignment # 6: The cost approach and highest and best use problems.

Class Meeting 15: Tuesday, October 11, 2016

IV. Market Analysis

A. Residential Property Markets

1. Market analysis

- a. The Demand Side
 - i. Population
 - ii. Households
 - Owners
 - Renters
 - Tenure Choice
 - iii. Income
 - iv. Race/Hispanic Origin
 - v. Life Cycle
 - vi. Expectations
- b. The Supply Side
 - i. The Existing Stock
 - Single-Family
 - Multi-Family
 - ii. New Construction

Assignment: Read pages 1-8 of “Arvada Final Report,” (and associated Tables) by Brian Lewandowski, Thomas Thibodeau and Richard Wobbekind

Class Meeting 16: Thursday, October 13, 2016

- 2. Single-family markets
 - a. Denver Metro House Prices
 - b. Absorption Rates
 - c. New Construction

Assignment # 7: Local Single-Family Market Analysis.

Class Meeting 17: Tuesday, October 18, 2016

- 3. Multifamily Markets

- a. The Existing Stock
 - i. Operating Income and Expenses
 - Rents
 - Vacancies
 - Expenses
 - ii. Valuation
 - Cap Rates
 - Asset Prices

Class Meeting 18: Thursday, October 20, 2016

- b. New Construction
 - i. Letter of Intent
 - ii. Assemble Team (architect, planner, civil engineer, and architect)
 - iii. Due Diligence
 - Preliminary Site Plan Approval
 - Soil Reports
 - Phase I Environmental Report
 - Phase II Environmental Report
 - iv. Municipal Requirements
 - v. Conceptual Design
 - vi. Entitlement Process
 - vii. Financing
 - identify potential sources of equity, debt
 - proforma
 - lender's package (e.g. appraisal...)
 - viii. Construction
 - Drawings
 - Management
 - ix. Property Management
 - Absorption
 - Stabilized Occupancy
 - x. Disposition

Class Meeting 19: Tuesday, October 25, 2016

- 4. Colorado Resort Markets
 - a. The Housing Market
 - i. House Prices in Eagle, Summit, Routt and Grand Counties
 - ii. The Ski Resort Context
 - iii. The Market for Second Homes
 - a. High End Condominiums in Steamboat Springs
 - iv. Workforce Housing
 - b. Fractional Ownership
 - c. Membership Clubs

Class Meeting 20: Thursday, October 27th, 2016

5. Affordable Housing
 - a. Federal Government Programs
 - i. Homeownership
 - ii. Rental Housing Assistance
 - b. State of Colorado: Colorado Housing Finance Agency
 - c. City of Boulder
 - i. Program Eligibility
 - ii. Programs
 - iii. Financing
 - d. Non-Profits

Class Meeting 21: Tuesday, November 1st, 2016

- e. Affordable Housing Case Study

Assignment:

1. Read Affordable Housing in Boulder, CO by Lewandowski, Thibodeau and Wobbekind and Boulder Mobile Manner, by Ryan Hibbard and Thomas Thibodeau
2. Low Income Housing Tax Credits Handouts

Class Meeting 22: Thursday, November 3rd, 2016

- B. Commercial Property Markets
 1. Submarkets
 2. Operating Income and Expenses
 - a. Rents
 - b. Vacancies
 - c. Expenses
 3. Valuation
 - a. Cap Rates
 - b. Asset Prices
 4. New Construction
 - a. The Pipeline
 - b. Absorption

Assignment:

1. Read pages 8-14 of “Arvada Final Report,” (and associated Tables) by Brian Lewandowski, Thomas Thibodeau and Richard Wobbekind

Class Meeting 23: Tuesday, November 8, 2016

5. Co-Star

Assignment:

1. Get acquainted with the CoStar website before class.
2. Assignment #8 - Local Commercial Property Market Analysis (CoStar)

Class Meeting 24: Thursday, November 10, 2015 – no class

Class Meeting 25: Tuesday, November 15, 2016

- C. Mixed Use and Transit Oriented Development
 - 1. TOD Planning
 - a. The role of the public sector, private sector and community
 - b. It Starts with a Vision: What do neighborhoods want?
 - c. Organizations Responsible for Developing the Vision
 - d. Overview of the TOD Process
 - i. The Planning Process
 - ii. How is TOD Different from Other Types of Development?
 - iii. Does Government Need to Provide Incentives?
 - e. The Denver TOD Initiative Strategic Plan
 - f. Station Specific Recommendations
 - 2. What Will the Market Support?
 - a. Regional vs Local Development
 - i. Site size
 - ii. Mix
 - iii. Density
 - iv. Required Infrastructure
 - b. What Comes First: Jobs, Rooftops or Recreational Activities?
 - c. Dynamics / Challenges of the Land Use Markets
 - d. TOD Transformations: Opportunities to Introduce New Products
 - e. TOD Financing Tools

Class Meeting 26: Thursday, November 17, 2016

- 3. Union Station

Tuesday, November 22, 2016 & Thursday, November 24, 2016 – no class
Thanksgiving Holiday

Class Meeting 27: Tuesday, November 29, 2016

V. The Role of Government

- A. What are the Objectives of Federal, State and Local Governments?
 - 1. Provide services (defense, public safety, education, transportation, administration)
 - 2. Address market failures (in land use, in construction, minimize externalities, protect the environment)
 - 3. Social insurance (housing, unemployment, welfare)
- B. How Does Government Accomplish/Finance these Objectives?
 - 1. Taxes
 - a. Income taxes
 - b. Sales taxes
 - c. Property taxes
 - d. User fees

2. Subsidies
 - a. AFDC, Housing Vouchers, LIHTC, Medicare, Medicaid, Social Security
3. Regulation
 - a. Building codes
 - b. Zoning
4. Planning
 - a. Components of a Comprehensive Plan
- C. Public goods
 1. The Tiebout Theory of Urban Public Finance
 2. Fishel's Homevoter Hypothesis
- D. Special Districts
 1. Creation
 2. Operations
 3. Financing
- E. The City of Boulder, Colorado
 1. Services
 2. Financing

Assignment: Read the City of Boulder CAFR.

Class Meeting 28: Thursday, December 1st, 2016

- VI. Sustainable Real Estate
 - A. New Construction
 1. Costs vs Benefits

Assignment: Read US Department of Energy. The Economic Benefits of Sustainable Design (including the appendix)