Course 331 – Mass Appraisal Practices and Procedures

Course Description
This course is designed to build on the subject matter covered in Course 300 – Fundamentals of Mass Appraisal and prepare the student to take the more advanced mass appraisal courses. It teaches the student how to use Excel and SPSS to analyze data and apply it. Much of the emphasis will be on data accumulation and analysis primarily directed toward the cost approach. Along the way, the student will learn how to use the graphing and analysis tools within Excel for ratio studies in addition to supporting existing cost schedules or building new ones. The course involves four days of classroom instruction and a final examination. Although it is not required, students are encouraged to obtain a copy of the Fundamentals of Mass Appraisal textbook for reading that will supplement classroom instruction.

Objectives
Upon completion of Chapter 1, you will be able to:
• Define and explain mass appraisal.
• Describe the objectives of mass appraisal.
• Know that both IAAO and the Appraisal Foundation publish mass appraisal standards.
• Know IAAO standards for the level and uniformity of assessments.
• Explain the role of models in mass appraisal.
• Distinguish between model specification and calibration.
• Define model “coefficients” and “terms”.
• Distinguish between additive, multiplicative, and hybrid models.
• Recognize and provide simple examples of the three model types.
• Briefly describe the advantages of each model type.
• Describe alternative reappraisal cycles.
• Describe the advantages and disadvantages of each approach.
• Describe key components of an effective mass appraisal system.
• Know IAAO accuracy standards for measurement data, objective categorical data, and subjective categorical data.
• Describe the basic steps for carrying out a mass appraisal.

Upon completion of Chapter 2, you will be able to:
• Explain why markets arise.
• Distinguish various types of markets: monopolies, oligopolies, regulated markets, free markets, and efficient markets.
• Describe the requirements for “perfect” market.
• Explain why real estate markets are not perfect markets.
• Define when a market is in equilibrium.
• Understand that markets in equilibrium imply “normal” but not “excess” profits.
• Provide examples of local, regional, national, and worldwide markets.
• Describe the typical real estate cycle: expansion, rising prices, increases in interest rates, reduced demand and
contraction.
- Explain why real estate prices can be volatile.
- Understand the concept of supply and demand curves and know how changes in price affect quantity supplied and quantity demanded.
- Understand that prices are determined by the interaction of supply and demand.
- Describe several components of quantity supplied (as evidenced by offers to sell).
- Describe several components of quantity demanded (as evidenced by offers to buy).
- Distinguish the difference between competing and complementary goods.
- Understand the key role interest rates play in real estate markets.

Upon completion of Chapter 3, you will be able to:
- Identify the three major categories of property characteristics required for mass appraisal.
- Identify the three major categories of market data required for mass appraisal.
- List property features typically important for residential properties.
- List property features typically important for commercial properties.
- Know which valuation approaches use sales, cost, and income data.
- Know the preferred and supplemental sources of sales data.
- List three methods of obtaining sales data from buyers and sellers.
- Know the primary categories of sales that are generally invalid for valuation analysis and ratio studies.
- Know when foreclosure-related sales should be considered potentially usable.
- Understand when sales prices may require adjustments.
- List alternative sources of income data.
- Know which income approach calculations require expense information.
- Distinguish between quantitative, qualitative (discrete), and binary data.
- Describe several methods for evaluating the adequacy and accuracy of assessment data.
- Describe several ways to help ensure the accuracy and consistency of property data.
- Define data integrity and consistency edits.
- Describe the functionality of the following data collection tools and options: handheld data entry devices, digital photos, video imagery, aerial photos and GIS, laser measuring devices, and oblique imagery.

Upon completion of Chapter 4, you will be able to:
- Explain the role and importance of stratification in mass appraisal.
- Explain the ramifications of failing to stratify property markets adequately.
- Identify the two primary bases of stratification in mass appraisal.
- Explain the role of market areas and neighborhoods in residential models.
- List guidelines for creating market areas.
- List guidelines for delineating residential neighborhoods.
- Describe pitfalls of over-stratification.
- Identify classes of commercial properties for which separate valuation analyses are commonly conducted.
- Identify common residential sub-classes.
- Explain differences in retail, office, and warehouse/industrial neighborhoods.
- Explain how GIS can be used to help define neighborhoods.
- Know what response surface analysis is and how it can be used in location analysis.
- Know what cluster analysis is and how it can be used to help define market areas and neighborhoods.

Upon completion of Chapter 5, you will be able to:
- Describe how worldwide, national, and regional factors affect local property markets.
- Understand how economic, social, governmental, and environmental forces affect property values.
- Identify the three economic stages used to characterize market areas and neighborhoods.
- List examples of site-specific factors that positively and negatively impact property values.
- Explain why sales should be adjusted to the valuation date.
• Understand the difference between straight-line and compounding adjustments.
• Know how to apply straight-line and compounding adjustments.
• Describe four methods for tracking price trends in mass appraisal.
• Describe the strengths and weaknesses of each method.
• Explain the different ways of extracting the indicated percentage change in property values from a scatter graph.
• Describe several transformations for handling nonlinear trends.
• Understand how a price index is determined.
• Understand how time adjustment factors can be derived from a price index.
• Explain the role of ratio studies in mass appraisal.
• Know how to interpret the coefficient of price-related bias (PRB).
• Define a confidence interval and explain the role of confidence intervals in ratio studies.
• Explain how to interpret a box plot.
• Describe how scatter graphs and box plots can assist in evaluating assessment equity.
• Describe how market adjustment factors can be determined from ratio studies and explain when they are and are not appropriate.
• Understand how ratio studies can help refine valuation models and schedules.

Upon completion of Chapter 6, you will be able to:
• Describe the appraisal principle of substitution.
• Know the three components of the cost approach.
• Explain the differences between historical, reproduction, and replacement cost.
• Know how demand factors can be incorporated into the cost approach.
• Explain the importance of accurate land values in mass appraisal.
• Describe the preferred method of land valuation.
• Describe methods that can assist in land valuation in the face of limited vacant land sales.
• Specify the mathematical structure of a hybrid cost model.
• List relevant costs included in replacement cost new (RCN).
• Describe the four methods of estimating replacement costs.
• List desirable features of a cost manual.
• Describe three alternatives a jurisdiction has for acquiring and maintaining cost models.
• Note the advantages and disadvantages of each alternative.
• Know how to develop cost trend factors from a construction cost index.
• List several alternatives for acquiring cost trend factors.
• Describe how cost trend factors can be developed from local cost data.
• Define depreciation and the three types of depreciation.
• Explain why some structures depreciate more (less) rapidly than others.
• Describe how depreciation can be derived from market analysis.
• Explain how an assessor can evaluate the reliability cost approach values.
• Describe how to calculate market adjustment factors.
• Explain the role of market adjustment factors in the cost approach.

Upon completion of Chapter 7, you will be able to:
• Describe the structure of a residential cost model.
• Describe the advantage and disadvantages of developing cost models in-house.
• Give the two bases on which residential properties are commonly stratified in the cost approach.
• Know what items and costs are included in base rates.
• Explain how base rates are determined.
• Describe how variations from base specifications are handled.
• Explain why building costs generally fall as size increases.
• Explain how size adjustment factors are calculated.
• Describe how sales ratio analyses can help to evaluate and refine depreciation schedules.
• Explain how depreciation adjustments can be derived from MRA models.
• List several advantages of formula-driven cost models.
• Describe how cost rates can be converted to multipliers.
• Explain how size adjustment factors can be approximated with an equation.
• Explain how MRA can be used to help market-calibrate cost models.

**Timetable**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Time Requirement</th>
<th>Day Covered</th>
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</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td></td>
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<tr>
<td>Definition, Scope, and Objectives of Mass Appraisal</td>
<td>20 Minutes</td>
<td>Monday AM</td>
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<tr>
<td>Mass Appraisal Models</td>
<td>45 Minutes</td>
<td>Monday AM</td>
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<tr>
<td>Mass Appraisal Cycles</td>
<td>45 Minutes</td>
<td>Monday AM</td>
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<tr>
<td>Components of Effective Mass Appraisal</td>
<td>60 Minutes</td>
<td>Monday AM</td>
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<tr>
<td>Steps in Mass Appraisal</td>
<td>45 Minutes</td>
<td>Monday AM</td>
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<tr>
<td>Review and Discussion Questions</td>
<td>30 Minutes</td>
<td>Monday PM</td>
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<tr>
<td>Chapter 2</td>
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<tr>
<td>Real Estate Markets</td>
<td>20 Minutes</td>
<td>Monday PM</td>
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<tr>
<td>Supply, Demand, and Price</td>
<td>40 Minutes</td>
<td>Monday PM</td>
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<tr>
<td>Determinants of Supply and Demand</td>
<td>40 Minutes</td>
<td>Monday PM</td>
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<tr>
<td>Chapter 3</td>
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<tr>
<td>Data Required for Mass Appraisal</td>
<td>45 Minutes</td>
<td>Monday PM</td>
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<tr>
<td>Sales Data</td>
<td>60 Minutes</td>
<td>Monday PM/Tuesday AM</td>
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<tr>
<td>Cost Data</td>
<td>30 Minutes</td>
<td>Tuesday AM</td>
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<tr>
<td>Income Data</td>
<td>30 Minutes</td>
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<tr>
<td>Property Characteristics Data</td>
<td>60 Minutes</td>
<td>Tuesday AM</td>
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<tr>
<td>Data Collection Tools and Options</td>
<td>30 Minutes</td>
<td>Tuesday AM</td>
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<tr>
<td>Discussion and Review Questions</td>
<td>45 Minutes</td>
<td>Tuesday PM</td>
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<tr>
<td>Chapter 4</td>
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<tr>
<td>Importance of Bases of Stratification</td>
<td>30 Minutes</td>
<td>Tuesday PM</td>
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<tr>
<td>Stratification by Property Type</td>
<td>30 Minutes</td>
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<tr>
<td>Market Areas and Neighborhoods</td>
<td>50 Minutes</td>
<td>Tuesday PM</td>
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<td>Topic</td>
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<tr>
<td>Roles of GIS</td>
<td>30 Minutes</td>
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<tr>
<td>Cluster Analysis</td>
<td>20 Minutes</td>
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<tr>
<td>Discussion and Review Questions</td>
<td>30 Minutes</td>
<td>Tuesday PM</td>
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<tr>
<td><strong>Chapter 5</strong></td>
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<tr>
<td>Market Forces and Factors</td>
<td>60 Minutes</td>
<td>Tuesday PM</td>
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<tr>
<td>Tracking Price Trends</td>
<td>195 Minutes</td>
<td>Wednesday AM/PM</td>
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<tr>
<td>Role of Ratio Studies</td>
<td>190 Minutes</td>
<td>Wednesday PM</td>
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<tr>
<td>Review Questions and Discussions</td>
<td>40 Minutes</td>
<td>Thursday AM</td>
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<tr>
<td><strong>Chapter 6</strong></td>
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<tr>
<td>Principles of the Cost Approach</td>
<td>30 Minutes</td>
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<tr>
<td>Land Valuation</td>
<td>55 Minutes</td>
<td>Thursday AM</td>
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<tr>
<td>Replacement Costs, Schedules and Manuals</td>
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<tr>
<td>Cost Trend Factors</td>
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<tr>
<td>Depreciation Analysis</td>
<td>55 Minutes</td>
<td>Thursday AM</td>
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<tr>
<td>Testing of Cost Values</td>
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<td>Thursday PM</td>
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<tr>
<td>Discussion and Review Questions</td>
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<td>Thursday PM</td>
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<tr>
<td><strong>Chapter 7</strong></td>
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<tr>
<td>Structure of Residential Cost Models</td>
<td>20 Minutes</td>
<td>Thursday PM</td>
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<tr>
<td>Stratification, base Specifications, and Unit Costs</td>
<td>30 Minutes</td>
<td>Thursday PM</td>
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<tr>
<td>Capturing Economies of Scale</td>
<td>25 Minutes</td>
<td>Thursday PM</td>
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<tr>
<td>Depreciation Adjustments</td>
<td>45 Minutes</td>
<td>Thursday PM</td>
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<tr>
<td>Formula-Driven Cost Models</td>
<td>25 Minutes</td>
<td>Thursday PM</td>
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<tr>
<td>Market Adjustments</td>
<td>25 Minutes</td>
<td>Friday AM</td>
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<tr>
<td>Review Questions</td>
<td>20 Minutes</td>
<td>Friday AM</td>
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