

## Course 300 – Fundamentals of Mass Appraisal

### Course Description

This course introduces students to mass appraisal and is a prerequisite for the IAAO 300-level course series. Topics covered include single-property appraisal as it compares to mass appraisal, components of a mass appraisal system, data requirements and analysis, introduction to statistics, use of assessment ratio studies in mass appraisal, modeling of the three approaches to value, and selection of a mass appraisal system.

### Body of Knowledge

The IAAO Body of Knowledge (BoK) is a framework for defining the key knowledge, skills, and subskills for the mass appraisal profession.

*Fundamentals of Mass Appraisal* contains material corresponding with the following Knowledge Areas:

- BOK 2: Collecting and Maintaining Property Data
- BOK 4: Appraising Property



### Course Audience

While we do not require prerequisites, it is strongly recommended that prior to taking this course, students take and pass courses 101 – *Fundamentals of Real Property Appraisal*, and 102 – *Income Approach to Valuation*. Course 300 assumes students have greater than a cursory knowledge of real property appraisal and property valuation using the income approach.

### Instructional Methods & Materials

Fundamentals of Mass Appraisal Online utilizes instructor videos, narrated PowerPoint presentations, assigned readings and discussion boards, exercises, and frequent checks of understanding to emphasize the main concepts and procedures taught in the course. Students will have access to the following reference materials:

- e-version of the course 300 Student Reference Manual
- e-version of *Fundamentals of Mass Appraisal* textbook (FMA)
- Glossary

### Required Technology

Students must have access to the following:

- A computer with a web camera with microphone
- A calculator
- Current version of Google Chrome, Firefox, or Safari
- Current version of Adobe Flash
- If accessing from a mobile device, it must be a large-screen device (i.e., tablet)

# Objectives



Upon completion of Chapter 1, the student should be able to:

- Understand mass appraisal and list differences and similarities between mass and single property appraisal.
- Trace the beginning and evolution of mass appraisal.
- Understand the features of mass appraisal.
- Define a model and explain the objectives of mass appraisal models.
- List basic supply and demand factors in real estate markets.
- Understand the basic structures of cost, sales comparison, and income models.
- Distinguish between model specification and calibration.
- Graph supply and demand curves.

Upon completion of Chapter 2, the student should be able to:

- Identify and describe the three components that make up the Property Tax System.
- Identify and describe the four components of a Computer Assisted Mass Appraisal System (CAMA).
- Describe the four basic files in a computer Assisted Mass Appraisal System (CAMA).
- Identify the ten steps in reappraisal.
- Distinguish between batch and on-line processing.
- Identify and describe the steps in a reappraisal involving a new CAMA system.
- Understand the types of property characteristics and how to collect data.

Upon completion of Chapter 3, the student should be able to:

- Understand why assessment data must be accurate.
- Know several methods for evaluating data accuracy.
- Distinguish between continuous, discrete, and binary data, giving examples of each.
- Know several factors important in the design of property record cards.
- Describe the type of training data collectors should receive.
- Know several elements of good protocol in field data collection.
- Estimate the number of staff positions required for a reappraisal
- Estimate the time required for data collection effort

Upon completion of Chapter 4, the student should be able to:

- Array data in order of magnitude.
- Develop and interpret frequency distributions.
- Develop a graphical representation of a frequency distribution.
- Calculate common measures of central tendency.
- Calculate common measures of dispersion.
- Use cross-tabulations to show the distribution of values for two binary or discrete variables.
- Develop scatter diagrams showing the relationship between two continuous variables.
- Use a polygon (line chart) to show several variables simultaneously.
- Use a polygon to show the same variable for different strata.
- Make three-way variable comparisons using contingency tables.



Upon completion of Chapter 5, the student should be able to:

- Define the purpose of ratio studies.
- List three means of obtaining sales information from buyers and sellers and the advantages and disadvantages of each.
- Describe sales that are commonly excluded from ratio studies.
- Explain two methods of adjusting sales for personal property and special financing.
- Describe an array, frequency distribution, line chart, (polygon) bar chart, (histogram) and scatter diagram and understand their use in ratio studies.
- Calculate the median, mean, and weighted mean for sales ratio or other data.
- Calculate the coefficient of dispersion (COD) and coefficient of variation (COV).
- Explain the coefficient of dispersion (COD).
- Explain the relationship between the coefficient of variation and a normal curve.
- Distinguish between horizontal and vertical equity and explain how each is measured.
- Know performance standards contained in the IAAO Standard on Ratio Studies.

Upon completion of Chapter 6, the student should be able to:

- Determine the structure of the cost approach in mass appraisal.
- Distinguish between reproduction and replacement cost.
- List the basic steps in applying the cost approach.
- List sources of tables for the cost approach.
- Compute and apply time and location adjustments in the cost approach.
- Describe the quantity survey method of cost estimation and its role in mass appraisal.
- Describe the unit-in-place method of cost estimation and its role in mass appraisal.
- Describe the comparative unit method of cost estimation and its role in mass appraisal.
- Describe the trended original cost method of cost estimation and its role in mass appraisal.
- List desirable features of cost manuals.

Upon completion of Chapter 7, the student should be able to:

- Define the structure of the sales comparison approach as applied in single property appraisal.
- Define additive, multiplicative, and hybrid model structures used in mass appraisal.
- Describe the three general approaches to treating location in sales comparison models.
- Explain how cluster analysis can be used in mass appraisal.
- List four steps in finding benchmark per unit values in the sales comparison approach.
- Explain how to evaluate the reliability of benchmark per unit values produced by per unit value analysis.
- Describe multiple regression analysis (MRA) and its role in mass appraisal.
- List strengths and limitations of MRA in mass appraisal.
- Describe adaptive estimation procedure (AEP) and its similarities.
- Describe automated sales comparison analysis and its roll, advantages, and limitations in mass appraisal.
- Describe global response surface analysis and its use in mass appraisal.

Upon completion of Chapter 8, the student should be able to:

- Define the basic structure of the income approach.
- Describe the two basic approaches to developing gross income multipliers and overall rates in mass appraisal applications of the income approach.
- Estimate vacancy ratios.
- Describe how an appraiser can evaluate the reliability of market rents, expense ratios, income multipliers, on overall rates developed through stratification.
- Identify the dependent variable in a gross rent model, expense ratio model, gross rent multiplier model, and overall rate model.
- Identify important dependent variables to include in gross rent expense ratio, gross rent multiplier, and overall rate models.
- List allowable expenses for property tax purposes and explain proper treatment of property taxes in income models.

