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Website: https://tritonnaedu.com/Courses/

Hands-on SEM with AMOS

Practical Online Course Brochure

Course Fee: ₹ 8,000
Delivery Mode: Online
Schedule: Flexible Timing
Level: Beginner to Intermediate
Duration: 60 hours

Watermark: Tritonna Edu Learning

Course Overview

Hands-on SEM with AMOS is a practical, beginner-friendly online course designed to help learners understand, apply, and interpret Structural Equation Modeling using IBM SPSS AMOS.

The course focuses on applied SEM practice rather than theory alone. Learners will be guided through conceptual framework development, hypothesis formulation, model specification, AMOS path diagram creation, confirmatory factor analysis, model fit assessment, reliability and validity evaluation, mediation analysis, bootstrapping, moderation basics, multi-group analysis basics, and interpretation of AMOS output.

Participants will learn how to prepare data, build measurement and structural models, assess model fit, modify models responsibly, and present SEM findings in a clear academic and research-reporting format.

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Course Details

Course Component	Details
Course Name	Hands-on SEM with AMOS
Institution	Tritonna Edu Learning
Website	https://tritonnaedu.com/Courses/
Delivery Mode	Online
Schedule	Flexible Timing
Course Fee	₹ 8,000
Duration	60 hours
Level	Beginner to Intermediate
Learning Approach	Demonstration, guided practice, exercises, model interpretation, and project-based learning
Recommended Software	IBM SPSS AMOS
Assessment	Practical exercises and final SEM mini-project

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Who Should Enrol?

This course is suitable for:

- Students and research scholars
- Postgraduate students

- PhD candidates
- Dissertation and thesis students
- Faculty members and teachers
- Social science and management researchers
- Psychology, education, commerce, business, healthcare, and public health learners
- Survey researchers and data analysts
- Professionals working with quantitative research
- Learners preparing theses, journal articles, conference papers, or research projects
- Learners interested in Structural Equation Modeling and advanced quantitative analysis

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Entry Requirements

Learners should ideally have:

- Basic computer skills
- Basic understanding of research methodology
- Familiarity with survey data and variables
- Basic knowledge of statistics
- Basic understanding of correlation and regression
- Interest in quantitative research and model-based analysis

Prior experience with SPSS is useful but not mandatory. No previous AMOS experience is required.

Learning Outcomes

By the end of the course, learners will be able to:

1. Understand the purpose and application of Structural Equation Modeling.
2. Differentiate between measurement models and structural models.
3. Develop a conceptual framework for SEM analysis.
4. Formulate research hypotheses suitable for SEM testing.
5. Prepare questionnaire data for AMOS analysis.
6. Screen data and identify missing values, outliers, and unsuitable cases.
7. Import and manage datasets for use in AMOS.

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8. Identify observed variables, latent variables, error terms, and paths.
9. Create AMOS path diagrams correctly.
10. Understand model specification, model identification, and degrees of freedom.
11. Conduct Confirmatory Factor Analysis.
12. Interpret factor loadings and standardized estimates.
13. Assess construct reliability.
14. Assess convergent validity and discriminant validity.
15. Interpret major model fit indices.
16. Estimate structural models using AMOS.
17. Interpret regression weights, critical ratios, significance values, and standardized estimates.
18. Analyse direct, indirect, and total effects.
19. Conduct mediation analysis using bootstrapping.
20. Understand the basics of moderation and multi-group analysis.
21. Use modification indices carefully and appropriately.
22. Interpret AMOS output tables and diagrams.
23. Prepare SEM results in thesis, dissertation, or journal-style format.
24. Complete a practical SEM mini-project using AMOS.

Course Curriculum

Module 1: Introduction to SEM and AMOS

Duration: 4 hours

Key Topics

- Meaning and purpose of Structural Equation Modeling
- Applications of SEM in academic and professional research
- Difference between regression, path analysis, and SEM
- Covariance-based SEM
- Observed variables and latent variables
- Measurement model and structural model
- Introduction to IBM SPSS AMOS interface
- Understanding AMOS workspace and tools
- Creating and saving AMOS files
- Examples of SEM in research

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Practical Activity

Identify constructs and variables in a sample research model and create a basic AMOS path diagram.

Module 2: Conceptual Framework and Hypothesis Development

Duration: 6 hours

Key Topics

- Conceptual framework development
- Theoretical framework and research model
- Constructs and indicators
- Independent, dependent, mediator, and moderator variables
- Causal paths and relationship mapping
- Research questions
- Hypothesis formulation
- Direct, indirect, and total effects
- Mediation concept
- Moderation concept
- Translating a conceptual model into an AMOS model

Practical Activity

Develop a conceptual framework and write research hypotheses for SEM testing.

Module 3: Data Preparation and Screening for SEM

Duration: 6 hours

Key Topics

- Preparing datasets for AMOS
- Questionnaire data structure
- Coding variables correctly
- Measurement scales
- Importing SPSS data into AMOS
- Checking missing values
- Screening data for errors
- Identifying outliers

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- Assessing normality
- Understanding sample size considerations
- Preparing scale items for SEM
- Common data preparation mistakes

Practical Activity

Prepare and screen a questionnaire dataset for SEM analysis.

Module 4: AMOS Interface and Path Diagram Development
Duration: 6 hours

Key Topics

- AMOS interface and workspace
- Drawing observed variables
- Drawing latent constructs
- Adding error terms
- Creating covariance paths
- Creating regression paths
- Naming variables correctly
- Linking datasets with AMOS models
- Setting model parameters
- Understanding fixed and free parameters
- Saving and managing AMOS models
- Common model specification errors

Practical Activity

Draw a measurement model and a structural path diagram using AMOS.

Module 5: Measurement Models and Confirmatory Factor Analysis
Duration: 8 hours

Key Topics

- Meaning and purpose of Confirmatory Factor Analysis
- Difference between Exploratory Factor Analysis and Confirmatory Factor Analysis

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- Measurement model specification
- Creating latent constructs
- Assigning observed indicators
- Running CFA in AMOS
- Understanding factor loadings
- Interpreting standardized estimates
- Error variances
- Weak indicators
- Model identification
- Reviewing CFA output
- Improving the measurement model responsibly

Practical Activity

Conduct CFA for a multi-construct questionnaire scale and interpret factor loadings.

Module 6: Reliability, Validity, Model Fit, and Modification

Duration: 8 hours

Key Topics

- Reliability in SEM
- Composite Reliability
- Average Variance Extracted
- Convergent validity
- Discriminant validity
- Standardized factor loadings
- Construct reliability checks
- Validity interpretation
- Meaning of model fit
- Absolute fit indices
- Incremental fit indices
- Parsimony fit indices
- Chi-square and degrees of freedom
- CMIN/DF
- GFI and AGFI
- CFI, TLI, and NFI

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- RMSEA and SRMR
- Interpreting acceptable fit values
- Modification indices
- Responsible model improvement
- Reporting reliability, validity, and model fit

Practical Activity

Calculate and interpret reliability, convergent validity, discriminant validity, and model fit for selected constructs.

Module 7: Structural Models and Hypothesis Testing
Duration: 7 hours

Key Topics

- Moving from measurement model to structural model
- Creating hypothesized paths
- Running the structural model
- Interpreting regression weights
- Standardized and unstandardized estimates
- Critical ratio and significance values
- Direct effects
- R-square interpretation
- Supported and unsupported hypotheses
- Hypothesis decision tables
- Reporting structural model findings
- Common interpretation mistakes

Practical Activity

Build and test a structural model using multiple latent variables and prepare a hypothesis-testing table.

Module 8: Mediation, Indirect Effects, and Bootstrapping
Duration: 6 hours

Key Topics

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- Meaning of mediation
- Direct effect, indirect effect, and total effect
- Full mediation and partial mediation
- Creating mediation models
- Bootstrapping in AMOS
- Bias-corrected confidence intervals
- Interpreting mediation output
- Reporting mediation findings
- Common mistakes in mediation analysis
- Practical interpretation of indirect effects

Practical Activity

Test a mediation model using AMOS and interpret direct, indirect, and total effects.

Module 9: Moderation, Multi-Group Analysis, and Advanced Applications
Duration: 4 hours

Key Topics

- Meaning of moderation
- Difference between mediation and moderation
- Introduction to interaction effects
- Group-based moderation
- Multi-group analysis in AMOS
- Creating grouping variables
- Comparing models across groups
- Measurement invariance overview
- Interpreting group differences
- Common applications of moderation and multi-group analysis
- Reporting moderation and group comparison findings

Practical Activity

Conduct a basic multi-group analysis and compare path relationships across two groups.

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Module 10: Reporting and Final SEM Mini-Project

Duration: 5 hours

Key Topics

- Reading AMOS output
- Selecting relevant output
- Understanding estimates and model fit tables
- Presenting CFA results
- Presenting reliability and validity results
- Presenting structural model results
- Reporting hypotheses
- Reporting mediation results
- Creating clear tables and figures
- Writing SEM interpretations
- Thesis-style SEM reporting
- Journal-style SEM reporting
- Common reporting errors

Practical Activity

Complete and present a final SEM mini-project with a concise findings report.

Final Practical Project

Each learner will complete a SEM mini-project involving:

1. Selecting or receiving a practice research dataset.
2. Identifying constructs and observed indicators.
3. Developing a conceptual framework.
4. Formulating research hypotheses.
5. Preparing and screening the data.
6. Importing data into IBM SPSS AMOS.
7. Creating a measurement model.
8. Conducting Confirmatory Factor Analysis.
9. Assessing reliability and validity.
10. Evaluating model fit.
11. Creating the structural model.

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12. Testing hypothesized relationships.
13. Analysing direct, indirect, and total effects.
14. Conducting mediation analysis using bootstrapping where appropriate.
15. Conducting basic group-based comparison where appropriate.
16. Interpreting AMOS output.
17. Preparing a concise SEM findings report.

Online | Flexible Timing | 60 Hours | ₹ 8,000

Recommended Software: IBM SPSS AMOS

Assessment: Practical exercises and final SEM mini-project

Ideal for students, researchers, faculty members, dissertation scholars, and professionals who want to apply Structural Equation Modeling using AMOS.

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