

Thematic Course
PhD in "Scienze Economiche e Statistiche"
SEAS Department
University of Palermo

Academic Year	2022-2023
Subject	An introduction to Structural Equation Models
Instructor	Chiara Di Maria
Course description	Structural equation models (SEMs) are widely used in many research fields, from psychology and social sciences to econometrics. Their ability to model latent constructs makes them a valuable statistical tool for carrying out several kinds of analyses: construction of indicators, modelling heterogeneity and clustered data structures, covariance analysis and many others. The aim of this course is to introduce students to latent variable modelling through SEMs, addressing key issues like model specification, identification and estimation, model goodness-of-fit indexes and interpretation of results. The course will also cover specific applications of SEMs, like factor analysis and (some) models for longitudinal data. Students will learn how to use the main R packages for structural equation modelling and their differences in terms of model specification and estimation algorithms.
Learning Objectives	Students completing this course should be able to: <ul style="list-style-type: none"> • Understand the structure of a SEM by inspecting its graph • Discuss the identifiability of a model • Perform a factor analysis • Setup and estimate a SEM either in cross-sectional and longitudinal settings
Suggested readings	<ul style="list-style-type: none"> • Schumacker, R. E. and Lomax, R. G. (2016) A beginner's guide to structural equation modelling, 4th edition. Routledge, New York. • Loehlin, J. C. and Beaujean A. A. (2017) Latent Variable Models. An Introduction to Factor, Path, and Structural Equation Analysis, 5th edition. Routledge, New York. • Grimm, K. J., Ram, N. and Estabrook, R. (2017) Growth Modeling. Structural Equation and Multilevel Modeling Approaches. Guilford Press, New York.
Course Activity (hrs)	10
Credits	2
Assessment Method	Report/presentation on a scientific paper and/or a dataset as agreed with the instructor.
Teaching Methods	Theory classes and computer labs
Calendar	July or September 2023 (to be agreed with students)
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