



《尊重智慧財產權，請使用正版教科書，勿非法影印書籍及教材，以免侵犯他人著作權》

開課班級：碩熱農一A

授課老師：廖世義

學分數：3

課程大綱：

該主題包括結構方程建模、模型擬合指數、路徑分析、驗證性因素分析、Bootstrap 程序和模型驗證。此外，還提到了使用基於回歸的方法進行的調解、調節和條件過程分析。最後，還討論了混合模型、組模型比較、潛在成長模型 (LGM) 和Bayesian分析。使用分析軟體為 AMOS 和 Smart-PLS。本課程將主要使用這兩個軟體作為實用工具加以應用。通過討論相關的橫向和縱向研究也將得到發展。

outline:

The topic includes structural equation modeling, model fit indices, path analysis, confirmatory factor analysis, Bootstrap procedure, and model validation. Furthermore, mediation, moderation, and conditional process analysis with a regression-based approach are mentioned. Finally, mix models, group model comparison, latent growth model (LGM), and Bayesian analysis are also discussed. The software, namely AMOS, and Smart-PLS, will be applied as practical tools. By the discussion of related horizontal and longitudinal research will also be developed. Theoretical models are also presented after each discipline, and therefore can be formulated and tested.

教學型態:

課堂教學+遠距輔助教學(同步、非同步)

成績考核方式:

平時成績:30%
期中考:30%
期末考:30%
其它:出缺勤及課堂參與與討論10%%

本科目教學目標:

Structural Equation Modeling (SEM) is a general class of multivariate modeling techniques that allows estimating relationships between latent (unobserved) variables. It is also a regression-based technique that combines both confirmatory factor analysis and path analysis. The overall goal of this course is to provide students with the conceptual aspects, statistical underpinnings, and applications of this method.

參考書目:

Byrne, B M. (2016). Structural Equation Modeling with AMOS: Basic concepts, application, and programming (3rd ed.). Routledge. Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). New York: Guilford. Hair, J. F. H., Hult, G. T.M., Ringle, C.M., & Sarstedt, M. (2017). A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed). SAGE Publication James T. McClave, P.George Benson, Terry Sincich.(2018). Statistics for Business and Economics 13th. 蕭文龍 (2020). 統計分析入門與應用SPSS中文版+SmartPLS 3 (PLS-SEM)第三版



課程進度表：

週次	起訖月日	授課單元(內容)	備註
第1週	9.13~9.20	Add/Drop Week Class introduction Grading system and software installation 0914-First Class https://meet.google.com/gcc-kgvu-oew 1. This is the GOOGLE MEET link for class on 09/14. ; 2. Please change your GOOGLE username to the following format: Name(Nickname) ex: Jefferson Jones (Jeff) ; 3.The nickname is for the professor to remember you faster.	8日正式上課。8~12日課程加退選，轉學(系)生、復學生及延修生選課，雙主修、輔系申請，12日申辦抵免學分截止日
第2週	9.20~9.27	;Moon Festival	
第3週	9.27~10.04	The theory and application of linear structure An introduction to Structural Equation Modeling Differences between path analysis and regression analysis CB-SEM versus PLS-SEM (VB-SEM) Difference between the formative and reflective indicators	28日(日)孔子誕辰紀念日/教師節(放假),29日(一)補假
第4週	10.04~10.11	AMOS/Smart-PLS interface and working environment Regression, interaction, and path analysis Model-identification and verification of causality	29日成績優異提前畢業者提出申請截止日
第5週	10.11~10.18	Mediation model and effect Understand the similarities and differences between mediation and moderation analysis Path model estimation Mediation effect verification Discussion of various mediation models	6日(一)中秋節(放假)，10日(五)國慶日(放假)
第6週	10.18~10.25	Multiple mediation models Explore multiple mediation models Parallel mediation, sequential mediation Bayesian estimand, custom estimand	14日學生宿舍安全輔導暨複合式防災疏散演練。18日多益測驗
第7週	10.25~11.01	Moderation analysis Moderation analysis tool Moderation effect map Moderated mediation and mediated moderation models	24日(五)補假，25日(六)光復暨古寧頭大捷日(放假)。
第8週	11.01~11.08	Introduction to Confirmatory Factor Analysis The similarities and differences between EFA and CFA Second-order CFA Multi-group analysis	30日校課程委員會
第9週	11.08~11.15	Mid-term exam - Paper Review & Article Reading	3~9日期中考試
第10週	11.15~11.22	Identification, verification, and evaluation of models Overall model fit assessment Evaluation of measurement model Evaluation	13日教務會議,16日教師期中成績上網登錄截止日



		of structural model	
第11週	11.22~11.29	SmartPLS (1) Evaluation of Reflective Measurement Models Evaluation of Formative Measurement Models	
第12週	11.29~12.06	SmartPLS (2) Evaluation of Structural Model Mediator analysis	24~28體育運動週。24日校園路跑。27日運動大會夜間開幕，28日運動大會活動，29日101週年校慶活動日，照常上班
第13週	12.06~12.13	SmartPLS (3) Moderator analysis Multi-group analysis (MITCOM)	
第14週	12.13~12.20	Latent growth curve model (1) Testing for change over time – the general notion	12日申請停修課程截止日
第15週	12.20~12.27	Latent growth curve model (2) Testing latent growth curve models	
第16週	12.27~1.03	Latent growth curve model (3) Something goes here	22日校務會議。25日行憲紀念日(放假)
第17週	1.03~1.10	Latent growth curve model (4) Something goes here	1日(四)開國紀念日(放假)
第18週	1.10~1.17	Final exam	5~11日期末考試，10~11日學生退宿