Multivariate Statistics and SEM

课程编号：02804030　　　　　　　授课对象：研究生

学　　分：2　　　　　　　　　　任课教师：王锐，黄清漪

课程类型：专业选修　　　　　　　开课学期：2014 春

先修课程：统计学的基础课程

任课教师联系方式：

辅导、答疑时间：

一、项目培养目标

学习目标 1 系统掌握从事学术研究所需要的专业知识及理论。
　　具体目标 1、系统掌握本学科基础知识及基本理论
　　具体目标 2、掌握本学科前沿知识和理论、具有足够的相关领域的知识
　　具体目标 3、熟练掌握本学科的研究方法

学习目标 2 具有从事创新性研究的能力；能够撰写并发表高质量的毕业论文和学术论文
　　具体目标 1、撰写高质量的毕业论文和学术论文
　　具体目标 2、具有高水平的分析能力和批判思维能力，能够创造性地解决问题

学习目标 3 具有宽阔的国际视野，能够与国际学者进行交流、合作的能力。
　　具体目标 1、具有优秀的口头交流和文字交流能力
　　具体目标 2、能够熟练地运用至少一门外语进行学术交流与沟通

学习目标 4 了解学术伦理，具有强烈的社会责任感、关注社会问题
　　具体目标 1、了解社会责任感的重要性
　　具体目标 2、了解学术生涯中的学术道德问题
　　具体目标 3、关注现实社会问题

二、课程概述和课程目标

The objective of the course is to expose students to the various multivariate statistics and SEM techniques that are available for data analysis. The target audience is Guanghua graduate students interested in quantitative research. The main focus of the course is to provide students with the necessary quantitative skills to (a) read and criticize published research articles (b) conduct independent quantitative research for papers and dissertations (c) progress to more advanced quantitative courses. The prerequisite for the course is a good course in statistics. Rudimentary knowledge of linear algebra is also required. While the course will provide the appropriate

theoretical background for the topics covered, the main approach is "hands-on", i.e., application-oriented.

三、内容提要及学时分配

Tentative Class Schedule:

Week 1-5: SEM (Prof. Rui Wang) (Tentative to Change)
Week 1: Introduction
Week 2: Measurement Model (Exploratory vs. Confirmatory Factor Analysis)
Week 3: Structure Model
Week 4: Multilevel Modeling
Week 5: Latent Class Analysis

Week 6-10: Multivariate Statistics (Prof. Qingyi Huang)
Week 6: Getting Ready for Analytics
Week 7: Multivariate Regression
Week 8: Multivariate Analysis of Variance
Week 9: Discriminant Analysis
Week 10: Factor Analysis

Week 11-12: Project Prsentation

四、教学方式

The course uses a combination of lectures, paper discussion, and analytical exercises to learn the material.

五、教学过程中 IT 工具等技术手段的应用

Students can use standard statistical software packages such as SAS and SPSS to conduct multivariate analysis.

六、教材

Alvin C. Rencher, Methods of Multivariate Analysis, 2nd Editon, Wiley.
结构方程模型：AMOS 的操作与应用　作者：吴明隆 著 出 版 社：重庆大学出版社

七、参考书目

1. Anderson, An Introduction to Multivariate Statistical Analysis, 3rd Edition, Wiley.
2. Sharma, Applied Multivariate Techniques, 1996, John Wiley & Sons
3. 结构方程模型：Amos 实务进阶作者：吴明隆 著 出 版 社：重庆大学出版社

八、教学辅助材料，如 CD、录影等

Related research papers will be provided as reading assignment.

九、课程学习要求及课堂纪律规范

This course encourages active interaction and participation in class discussion. Students need to give sufficient excuse for their absence.

十、学生成绩评定办法（需详细说明评估学生学习效果的方法）

Class participation & attendance	15%
Individual assignments	25%
Presentation	20%
Final	40%