

101年博士班資格考(管理計量方法)

閉書測驗

1. Describe of the statistical meaning of Factor Analysis and Principal Component Analysis. Then, base on the linear combinational concept, describe the mathematical model of Factor Analysis and Principal Component Analysis, and the conversion between Factor Analysis and Principal Component Analysis mathematical models. (20%)
2. How to do the data conversion when the research data has been collected. Please use the study examples of information management to illustrate the statistical differences between F test and T test. (15%)
3. Please use the real case of information management to illustrate the interference effects and mediating effect on the structural equation module (SEM). (15%)
4. You are deciding whether or not to add n additional variables to a regression. Comment on the following techniques and relations among them. Need to discuss metrics and defects. (30%)
 - i) Do it if R^2 goes up.
 - ii) Put in all the variables. Discard any variable whose estimated coefficient fails to have a significant t-statistic and re-compute, and repeat the process.
 - iii) Add the variable whose correlation with the dependent variable is greatest. If the resulting coefficient has a significant t-statistic, keep the variable in. If not, drop it. Go on to the variable with the next highest correlation with the dependent variable.
5. What are the least square assumptions? (10%)
6. What is the source of errors? (10%)