Figure 6.4 Abbreviated Course Syllabus
Economics and Finance:1200900127 Econometrics

Course Number:	1200900127
Course Name:	Econometrics
Instructors:	Tang Ru
Students:	Economics and Finance Cohort 2020
Required Text:	1. *Econometrics* by Li Zinai, published by Higher Education Press, 2020. 2. *Financial Economic* by Wang Jing, published by Renmin University of China Press, 2006.
Course Description:	Econometrics is a required course for economics and finance program. It combines economic theory with statistical methods to explore how econometric methods can be used to quantitatively describe economic variable relationships with random characteristics. According to the characteristics of undergraduates and the training needs of applied talents, this course will introduce the theoretical methods of classical single equation measurement model, simultaneous equation measurement model and time series measurement model in detail. In addition, practical training in the application of econometrics software will be complemented. Through the teaching of this course, students are required to master the basic principles and main modeling methods of econometrics, be familiar with the basic contents and working procedures of econometrics analysis, and be able to use econometrics software to carry out practical operation and analysis of economic problems.

Topic Outline:		Hours/Minutes
I.	Introduction	4
A.	What is Econometrics	
	①Econometrics	
	②Modeling steps of classical econometric models	
B.	Research Steps of Econometrics	
	①Design of theoretical models	
	②Collection of sample data	
	③Estimation of model parameters	
	④Model verification	
	⑤The Three Elements of Successful Econometric Models	
C.	Data, Variables, and Models	
	①Models	
	②Application of econometric models	

II.	Simple Linear Regression Model	10
A.	Regression Analysis and Regression Equations ①The Relationship between Variables and the Basic Concepts of Regression Analysis ②Population regression function ③Random perturbation term ④Sample Regression Function (SRF)	
B.	Least Squares Estimation of Simple Linear Regression Models ①Basic Assumptions of a Univariate Linear Regression Model ②Ordinary Least Squares Estimation (OLS) of Parameters ③Maximum Likelihood Method (ML) for Parameter Estimation ④Properties of Least Squares Estimators ⑤Probability distribution and random intervention of parameter estimators Estimation of the variance of perturbation term	
C.	Hypothesis Testing and Interval Estimation of Regression Coefficients ①Goodness of fit test ②Significance test of variables ③Confidence interval of parameters	
D.	Measurement of goodness of fit ①$\hat{Y}$ 0 is an unbiased estimate of the conditional mean E (Y | X=X0) ②Confidence interval between the mean of overall conditions and the predicted value of individual values Regression Prediction	
III.	Multiple Linear Regression Model	12
A.	Multiple Linear Regression Model and Classical Assumptions ①Multiple linear regression model ②Basic Assumptions of Multiple Linear Regression Models	
B.	Estimation of Multiple Linear Regression Models ①Ordinary least squares estimation ②Testing of Multiple Linear Regression Models ③Properties of parameter estimators ④Prediction of Multiple Linear Regression Models	
IV.	Multicollinearity	8
A.	What is multicollinearity ①The concept of heteroscedasticity ②Types of heteroscedasticity ③Heteroscedasticity in Real Economic Problems	
B.	Consequences of multicollinearity ①The consequences of heteroscedasticity ②Testing for Heteroscedasticity ③Correction for heteroscedasticity	
C.	Remedial Measures for Multicollinearity ①Random explanatory variable problem ②The problem of random explanatory variables in practical economic problems	

	③Consequences of random explanatory variables	
V.	Heteroscedasticity	8
A.	Concept of Heteroscedasticity	
	①The Basic Meaning of Virtual Variables	
	②Introduction of virtual variables	
	③Principles for setting virtual variables	
B.	Consequences of Heteroscedasticity	
	①Lagged variable model	
	②Parameter Estimation of Distributed Lag Models	
	③Parameter estimation of autoregressive models	
	④Granger causality test	
C.	Type of model setting error	
	①Consequences of model setting error	
	②Test of model setting error	
	③Remedial Measures for Heteroscedasticity	
	④Case Analysis	
VI.	Autocorrelation	8
A.	Concept of autocorrelation	
	①Concept of sequence correlation	
	②Sequence correlation in practical economic problems	
	③Consequences of sequence correlation	
	④Testing of sequence correlation	
	⑤Estimation of models with sequence correlation	
B.	Consequences of Autocorrelation	
	①The concept of multicollinearity	
	②Multicollinearity in practical economic problems	
	③Consequences of multicollinearity	
C.	Autocorrelation Testing	
	①Testing multicollinearity	
	②Methods for overcoming multicollinearity	
VII.	Distributed Lag Model and Autoregressive Model	6
A.	Lag Effect and Lag Variable Model	
	①Lagged variable model	
	②Parameter Estimation of Distributed Lag Models	
	③Parameter estimation of autoregressive models	
	④Granger causality test	
B.	Estimation of Distributed Lag Models	
	①Consequences of model setting error	
	②Construction of Autoregressive Model	
	③Estimation of Autoregressive Models	
VIII.	Estimation of Autoregressive Models	8
A.	Virtual VariableRegression	
	①Random error term variance covariance matrix of simultaneous equation model	

	②Introduction to the Three Stage Least Squares Method	
	③Introduction to Complete Information Maximum Likelihood Method	
B.	Virtual Variables	
	①Comparison of model estimation methods	
	②Regression of Virtual Explanatory Variables	
	③Virtual dependent variable	
	④Case Analysis	
	Total Sessions (Coverage Hours)	64

Summary of UG CPC Topics Covered in this Course:		Hours/Minutes
a.	Marketing	0
b.	Finance	4
c.	Accounting	0
d.	Management	0
e.	Legal environment of Business	0
f.	Economics	18
g.	Business Ethics	0
h.	Global Dimensions of Business	0
i.	Business Communications	0
j.	Information System	8
k.	Quantitative Techniques and Statistics	26
l.	Business Policies	0
m.	Comprehensive or Integrating Experience	8
	Total Estimated CPC Coverage Hours	64