

《计量经济学》课程教学大纲

一、课程基本信息

英文名称	Applied Econometrics	课程代码	FIAI2007
课程性质	专业必修课程	授课对象	国际金融专业
学 分	3.0	学 时	54
主讲教师	外教	修订日期	2023.3
指定教材	Introduction to Econometrics 2020 Third Edition, by James H.Stock and Mark W.Watson		

二、课程描述

Econometrics is the science and art of using economic theory and statistical techniques to analyze economic data. Econometric methods are used in many branches of economics, including finance, labour economics, macroeconomics, microeconomics, marketing, and economic policy. Econometric methods are also commonly used in other social sciences, including political science and sociology.

Econometrics is the set of tools used for forecasting future values of economic variables, such as a firm's sales, the overall growth of the economy, or stock prices. It is also a process of fitting mathematical economic models to real-world data. Moreover econometrics is the science of using historical data to make numerical recommendations.

The course introduces students to the core set of methods used by econometricians. We will use these methods to answer a variety of specific, quantitative questions taken from the world of business and government policy.

三、课程大纲

1. Introduction to econometrics

Contents

1. economic questions
2. data sources
3. causality

2.Review of probability

Contents

1. random variables and probability distributions
2. expected values, mean, and variance
3. two random variables
4. different distributions
5. random sampling and sample average
6. large-sample approximations

3. Review of statistics

Contents

1. Estimation of the population mean
2. Hypothesis tests
3. Confidence intervals
4. Using t-statistic when the sample size is small
5. The sample covariance and the sample correlation

4. Linear regression with one regressor

Contents

1. Linear regression model
2. Coefficients
3. Measures of fit
4. The least squares assumptions

5. Regression with a single regressor: Hypothesis tests

Contents

1. testing hypothesis about one of the regression coefficients
2. confidence intervals for a regression coefficient
3. heteroskedasticity

6. Linear regression with multiple regressors

Contents

1. omitted variable bias
2. the multiple regression model
3. the OLS estimator in multiple regression
4. measures of fit in multiple regression
5. the least squares assumptions in multiple regression
6. multicollinearity

7. Hypothesis tests and confidence intervals in multiple regression

Contents

1. hypothesis tests and confidence intervals for a single coefficient
2. test of joint hypothesis
3. model specification for multiple regression
4. characteristics of a bill of lading

8. Nonlinear regression functions

Contents

1. a general strategy for modeling nonlinear regression functions
2. nonlinear functions of a single independent variable
3. interactions between independent variables

9. Assessing studies based on multiple regression

Contents

1. internal validity
2. external validity
3. threats to internal and external validities

四、教学进度

周次	教学内容 Teaching content	学时 分配 Class hour	目的要求 Purpose requirements
1	Intro to econometrics, Review of probability	3	learn what econometrics is and why we need to study it, revise basic probability theories
2	Review of probability	3	revise basic probability theories, mean, variance, standard deviation, covariance etc
3	Review of probability	3	revise basic probability theories, mean, variance, standard deviation, covariance etc
4	Review of statistics	3	revise basics of statistics, estimator, hypothesis tests etc
5	Review of statistics	3	revise basics of statistics, estimator, hypothesis tests etc
6	Practice	3	solving problems
7	Linear regression with one regressor, Minitab	3	learn how to make a linear model with one regressor and how to use a software "Minitab"
8	Revision	3	preparation for the midterm test
9	Midterm Exam	3	

10	Linear regression with one regressor, Minitab	3	learn how to make a linear model with one regressor and how to use a software "Minitab"
11	Regression with a single regressor: hypothesis tests	3	study how to conduct a hypothesis tests to "check" the regressor
12	Linear regression with multiple regressors	3	learn how to make a linear model with several regressors
13	Hypothesis tests and confidence intervals in multiple regression	3	study how to conduct a hypothesis tests to "check" the regressor
14	Nonlinear regression functions	3	learn how to make a nonlinear model with one/several regressors
15	Assessing studies based on multiple regression	3	work with the software "Minitab" to assess models
16	Assessing studies based on multiple regression	3	work with the software "Minitab" to assess models
17	Revision	3	preparation for the final test
18	Final Exam	3	

五、考核方式及评定方法

- ◆ Attendance and Participation 10%
- ◆ Problem Sets 10%
- ◆ Mid-Term 30%
- ◆ Final Exam 50%

课程 目标	评分标准				
	90-100	80-89	70-79	60-69	<60
	优	良	中	合格	不合格
	A	B	C	D	F

六、参考书目