

計量經濟學導論暨實習下
社科101(週三)、社科201(週二)

- 上課時間:
週三 11:20-13:10, 雙週週二 13:20-15:10。
- 課程目標: 使學生在修完本課程之後, 擁有從事實證研究所需的基本工具。
- 課程網頁:
<https://ceiba.ntu.edu.tw/1082metrics2020s>
- 教材:

(SW) Stock and Watson (2020), Introduction to Econometrics, Addison Wesley, 4th edition.
- 成績計算: 期初考 10%, 實習課與小考 25%, 期中考 30% (4/15), 期末考 35% (6/17)。
- 實習課:
陳柏宇和陳柏瑜助教,
網址: <https://sites.google.com/g.ntu.edu.tw/2019ntustats/2020-spring-econometrics>
- 期初考:
 - Review of Probability (SW2)
 - Review of Statistics (SW3)
- Topics:
 1. Introduction and Review (SW1)
 - Economics Questions and Data
 2. Bivariate Regression (SW4, SW5, SW17).
 - Probability framework.
 - Estimation and hypothesis testing.
 - Homoskedasticity.
 3. Multiple Regression (SW6, SW7, SW18).
 - Omitted variable bias.
 - Multiple regression model.
 4. Nonlinear Regression Models (SW8).
 - Modeling nonlinear regression functions.
 - Interactions between independent variables.
 5. Assessing Regression Studies (SW9).
 - Internal and external validity.
 - Threats to internal validity.
 6. Panel Data (SW10).
 - Panel data with two periods.
 - Fixed effects regression.
 7. Binary Dependent Variable Models (SW11).
 - Linear Probability Model.

- Probit and Logit Models.
- 8. Instrumental Variables Regression (**SW12**).
 - General IV regression model.
 - Checking instrument validity.
 - Where do IV come from?
- 9. Experiments and Quasi-Experiments (**SW13**).
 - Difference-in-difference estimator.
 - Quasi-experiments.
 - Average treatment effect.
- 10. Prediction with Many Regressors and Big Data
 - The Many-Predictor Problem and OLS
 - Ridge Regression
 - The Lasso
 - Principal Components
- 11. Introduction to Time Series Regression and Forecasting (**SW15**)
 - Stationarity and the Mean Squared Forecast Error
 - Autoregressions
 - Time Series Regressions with Additional Predictors and the ADL Modle
 - Nonstationrity I: Trends
 - Nonstationrity II: Breaks
- 12. Estimation of Dynamic Causal Effects (**SW16**)
- 13. Additional Topics in Time Series Regression (**SW17**)