

Statistics

General Information

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(Room 1.25)

Course load: 30 hrs

Examination: To pass the course you must obtain a sufficient grade on the final written examination. No materials are permitted during the test.

An example of examination questions will be provided in due time.

Examination date: TBA

Reference:

Chapters of Introductory Econometrics: A Modern Approach, 4th edition, by Jeffrey Wooldridge, South-Western, Cengage Learning 2009

Preliminary Course Schedule

PART I: FUNDAMENTALS OF PROBABILITY

1. RANDOM VARIABLES AND THEIR PROBABILITY DISTRIBUTIONS

- o Random variables and their probability distributions: discrete random variables, continuous random variables
- o Joint distributions, conditional distributions and independence

2. FEATURES OF PROBABILITY DISTRIBUTIONS

- o A measure of central tendency: the expected value and its properties
- o Another measure of central tendency: the median
- o Measures of variability: variance and standard deviation
- o Standardizing a random variable

3. FEATURES OF JOINT AND CONDITIONAL DISTRIBUTIONS

- o Measures of association: covariance and correlation
- o Conditional expectation and its properties
- o Conditional variance

4. THE NORMAL AND RELATED DISTRIBUTIONS

- o The Normal distribution, the standard Normal distribution and their properties
- o The Chi-Square distribution

- o The t distribution

PART II: FUNDAMENTALS OF MATHEMATICAL STATISTICS

5. POINT ESTIMATION I

- o Populations, parameters and random sampling
- o Estimators and estimates
- o Finite sample properties of estimators: unbiasedness and efficiency

6. POINT ESTIMATION II

- o Large sample properties of estimators: consistency and the Law of Large Numbers
- o Asymptotic normality and the Central Limit Theorem

7. INTERVAL ESTIMATION

- o Rationale of interval estimation
- o Confidence intervals for the mean from a normally distributed population
- o Asymptotic confidence intervals for nonnormal populations

8. HYPOTHESIS TESTING I

- o Fundamentals of hypothesis testing
- o Testing hypotheses about the mean in a normal population

9. HYPOTHESIS TESTING II

- o Asymptotic tests for nonnormal populations
- o p-values
- o The relationship between confidence intervals and hypothesis testing

10. Exercise Session