

Syllabus

Overview. Welcome to the course of Statistics II for the second-year students. This course surveys basic statistical concepts with realistic applications in **Economics** and **Econometrics**. This course focuses on the ideas of correctly extracting information from data analyses, which forms the bases of **Econometrics** and **Machine Learning**. As students get better at data-analytic thinking they will develop intuition as to how and where to apply creativity and domain knowledge. Topics are as follows.

- (i) What is statistical inference and the usual mis-interpretations of statistical analyses?
- (ii) The way to let data speak? –Hypothesis Testing.
- (iii) The way to discover potential relations. –Foundations of Regression.
- (iv) The way to clarify causal relations. –Causal Analysis.
- (v) The way to generalize from observed data. –Foundations of Machine Learning.

Grades. There will be **two midterms, one final exam and several pre-exams (70%); several in-class quizzes (or simulation homeworks) (30%)**. **This course requires learning Python programming skills for verifying statistical theory and practicing applications.** This course is not harsh, but require regular attendance. **Missing one quiz reduces the score 3 points.**

Textbook. Newbold, Carlson, and Thorne (2020), *Statistics for Business and Economics*, Pearson Education Inc., 9th edition.

John Stachurski (2016), *A Primer in Econometric Theory*, The MIT Press.

Pearl and Mackenzie (2018), *The Book of Why: The New Science of Cause and Effect*, Basic Books.