

## 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.

根據本校公布之佈的「大學教育場域 AI 協作、共學與素養培養指引」，本門課程採取禁止使用，以下為相關的監管機制

- 修讀本門課程之學生應注意本門課不得繳交使用生成式人工智慧所產出的作業、報告或個人心得。若經查核發現，教師、學校或相關單位有權重新針對作業或報告重新評分或不予計分。
- 修讀本課程之學生於選課時視為同意以上倫理聲明。