

# Statistics, Fall 2023

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Time: Tu2Tu3Tu4

Location: Social Science 202

TA: TBA

Review Session: Th8Th9

Location: Social Science 403

*Data is the new oil. It's valuable, but if unrefined it cannot really be used. It has to be changed into gas, plastic, chemicals, etc to create a valuable entity that drives profitable activity; so must data be broken down, analyzed for it to have value.* (Clive Humby, 2006)

*Big data is like teenage sex: everyone talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it, so everyone claims they are doing it.* (Dan Ariely, 2013)

*In school, we rarely learn probability & statistics, leaving us victims of our mind's own inability to process random events.* (Neil deGrasse Tyson, 2017)

Welcome to the introductory course in statistics, *a branch of mathematics dealing with the collection, analysis, interpretation, and presentation of masses of numerical data* (as per the Merriam-Webster dictionary definition). Tailored specifically for second-year econ-major students, this semester's curriculum centers around essential topics such as probabilities, random variables, distributions, estimations, and hypothesis tests. By mastering these foundational concepts, you'll acquire a robust understanding of statistical principles, empowering you to apply them effectively in diverse real-world scenarios, as well as in the subsequent introductory course in econometrics led by Prof. Kuan-Ming Chen.

Emphasizing a practical approach, students are equipped with essential skills in R, an open-source programming language extensively utilized by statisticians and data miners for statistical software development and data analysis. Proficiency in R is a fundamental requirement for this course, and it plays a pivotal role throughout the curriculum. Therefore, if coding is not your forte or passion, this particular course might not align with your interests.

Get ready to embark on a journey of discovery and practical knowledge in the realm of statistics!

## Grading

One midterm (October 24, **40%**). One final (December 19, **50%**). Assignments (**10%**).

## Required Reading

1. Heumann, Christian, Michael Schomaker, and Shalabh (2016), *Introduction to Statistics and Data Analysis: With Exercises, Solutions and Applications in R*, Springer.
2. Linton, Oliver (2017), *Probability, Statistics and Econometrics*, Academic Press.