

ECO 104 (**Sec - 9**), SPRING 2025
Statistics for Business and Economics - I
EAST WEST UNIVERSITY

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Teaching Assistant:	Habiba Afroz §. Email: 2023-1-30-013@std.ewubd.edu
Schedule:	SR - 10.10 PM - 11.40 PM §. Room: AB1 - 601
Course Webpage:	https://ewu-econ.github.io/eco104

§. Office Hours:

Sundays and Thursday 2.30 PM to 4.00 PM (Room - 344). It's preferable to come during this time! However if you are struggling and need help, then please let me know. Habiba has different office hours, please contact her to know the details.

§. Communication:

The Google Classroom code is - pdfbn4jb. But we will also heavily use Discord Server for better and easy communication, you can find the details in the classroom! Please join Discord Server for the course.

§. Course Description:

This is the first course in the sequence of two Statistics courses offered for the Economics and Business students at EWU (the next one is ECO 204). The course will cover*

1. Basic ideas about Statistics and Data Sets.
2. Some Descriptive Statistics (graphical and numerical methods).
3. Introduction to Probability Theory (i.e., defining Probability, Random Variables and Distributions).
4. Ideas about Sampling Distributions.
5. Index numbers.

The approach of the class includes both learning the concepts and also how to apply them in real-life situations. Students will also be introduced to Microsoft Excel for applications related to business and economic data.

§. Prerequisite Courses:

MAT100 or at least equivalent Math courses.

§. Textbooks / Notes:

There will be lecture notes (typed), and you should definitely read that first. In addition, I recommend to use any of the following books for exercises and practice problems.

1. [Anderson, Sweeney, Williams, Camm, Cochran, Fry and Ohlmann \(2020\)](#)
2. [Newbold, Carlson and Thorne \(2020\)](#)

Following books are a bit advanced at this level, but nevertheless these are also excellent references.

- [DeGroot and Schervish \(2012\)](#)
- [Casella and Berger \(2002\)](#)

§. Marks Distribution

Midterm 1	20%
Midterm 2	20%
Quiz	15%
Assignment	5%
Homework	5%
Lab Assignment	5%

*Please see at the end for a detailed list of topics

§. Dates and Calendar

I will share this in the Discord Server as we proceed with the course.

§. Problem Sets, Quizzes and Lab Project

- **Problem Sets:** There will be some problem sets, please submit them on time. The problem sets will be posted in the Google Classroom, and you can submit them there as well.
- **Quizzes:** In total there will be 3 quizzes, I will take the average of best 2.
- **Lab Project:** Lastly, there will be a Lab Project. We will talk about the details later in class.

§. Participation Points

Class participation has 3 points as bonus points, however to be eligible for participation points, you must attend 85% of the lectures and respond to the questions I will ask in the class.

§. Grading Scheme:

Check EWU grading policy. I will follow the standard grading policy.

§. Harassment and Respect Policy

Our university is committed to providing a safe and friendly environment for everyone. Harassment or discrimination based on race, color, religion, gender, ethnicity, or any other personal characteristic is strictly prohibited. All students are expected to treat each other with respect and dignity. If I observe any behavior that violates these standards, I will report it to the university authorities for prompt action.

§. Lastly.....

Please try to be punctual at class. Regular attendance is important, the course is relatively fast-paced, and missing a class can be a big loss. You are expected to maintain highest level of *academic honesty*, this means, you should perform all academic activities *without any form cheating, lying, stealing, plagiarism, receiving unauthorized assistance or using any source of information that is prohibited* to use. Finally there might be minor changes in the outline or plan because of unexpected events, but if this happens you will be informed in the class as soon as possible.

§. References:

Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., Cochran, J. J., Fry, M. J. and Ohlmann, J. W. (2020), *Statistics for Business and Economics*, 14th edn, Cengage, Boston, MA.

Blitzstein, J. K. and Hwang, J. (2015), *Introduction to Probability*.

Casella, G. and Berger, R. L. (2002), *Statistical Inference*, 2nd edn, Thomson Learning, Australia ; Pacific Grove, CA.

DeGroot, M. H. and Schervish, M. J. (2012), *Probability and Statistics*, 4th edn, Addison-Wesley, Boston.

Newbold, P., Carlson, W. L. and Thorne, B. M. (2020), *Statistics for Business and Economics*, 9th edn, Pearson, Harlow, England.

§. Topics in detail:

Here is the list of topics in detail -

- **Descriptive Statistics and Summary measures:** Summarizing data for discrete and continuous random variables using table and graph, introduction to some basic numerical measures of location and dispersion (e.g., sample mean, sample median and sample variance), using box-plots and histograms to get a basic idea about the distribution of the sample points.
- **Probability Theory**
 - **Experiments, Events and Probability:** Random Experiments, Events, Definition and Interpretation of Probability, Calculating Probabilities for finite sample space using different counting techniques, Conditional Probability, Independence and Bayes Theorem.
 - **Random Variable and Distributions (Univariate)** Random Variables (Discrete and Continuous), Distribution of a Random Variable, PMFs and PDFs, CDFs, Quantiles, Summary measures of a distribution (in particular Expectation and Variance), Function of a random variable, examples of some theoretical distributions (Bernoulli, Poisson, Uniform and Normal).
 - **Random Variable and Distributions (Multivariate)** Joint, Marginal and Conditional Distributions, Covariance and Correlation.
 - **Limit Theorems:** Idea of a sequence of iid random variables, Law of Large Numbers (LLN) and Central Limit Theorem (CLT) for the simple iid case.
- **Sampling and Sampling distributions** Basic concepts about sample and population, simple random sampling, idea of a parameter and point estimator, sampling distribution of the sample mean (exact and large sample).
- **Discussion of some index numbers** Price Relatives, Price Index, Computing an Aggregate Price Index, Some Important Price Indexes, e.g., CPI and PPI.