

## Probability and Statistical Inference for Economists

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Classroom and Schedule:  
BUC 212, M. W. 6 - 9 pm  
Office Hours: By appointment  
or 5-6 pm

### Course Description

We will study probability, distribution and statistical inference based on the following topics: random variables, probability distributions, sampling distribution, estimators, confidence intervals, hypothesis testing and regression. Prerequisite for this course is College Algebra (Math 1090 preferred), Principles of Micro and Macroeconomics (Econ 2010 and 2020), or the instructor's consent.

### Learning Objective

The learning objective for Econ 3640 is to enable students to obtain an understanding of basic theoretical foundations of statistical inference and practical skill of dealing with economic data using a computer software (e.g. MS Excel), so that these students can understand and present quantitative work. Specifically, you can present a dataset numerically and graphically based on its descriptive statistics, understand the foundations of probability theory and various features of distributions and make inferences based on point and interval estimators using hypothesis testing and confidence interval.

### Course Materials

The classes will be based on lecture notes (pdf) and presentation files (powerpoint) and you can download them from CANVAS (<https://learn-uu.uen.org>). In addition, there are optional textbooks: David S. Moore, George P. McCabe, Layth Alwan, and William M. Duckworth, *The Practice of Statistics for Business and Economics*, 3rd edition, W. H. Freeman, 2010 (or David S. Moore, George P. McCabe, William M. Duckworth and Layth Alwan, *The Practice of Business Statistics*, 2nd edition, W. H. Freeman, 2008).

### Grading and Assessment

The course grade will be based on quizzes, assignments, and two closed-book in-class exams (midterm and final) (Quiz: 20%; Assignments: 30%; Midterm: 20%; and Final: 30%). The official course grade will be based on the sum of scores you have made on quizzes, assignments and two exams. Tentative grading scale: A range  $\geq 90$ ; B range  $\geq 75$ ; C range  $\geq 60$ ; D range  $\geq 50$  (it is tentative and can be adjusted according to class performance).

### Class Policies

- ♦ No late submission of assignments is allowed.
- ♦ You cannot miss an exam and take a makeup exam unless I give you permission to do so. Without my permission, you will earn a zero point on your missing exam.
- ♦ Incomplete will be given only for compelling reasons such as illness or family emergency.
- ♦ Academic misconduct such as cheating on exams (or other forms of academic dishonesty) may lead to failure of class (or expulsion from the class).
- ♦ The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations.

**Tentative Schedule: Classes and Assignments**

Wk	Date	Topic	Ch.	Note
1	5/13	Introduction to the Course Examining Distributions	1	
	5/15	Examining Distributions Examining Relationships	1 2	
2	5/20	Examining Relationships Producing Data	2 3	
	5/22	Probability & Sampling Distributions Review for the Midterm	4	Last day to drop (delete)
3	5/27	No Class		Memorial Day
	5/29	Midterm (Ch.1 to 3; 6 to 7 pm) Probability & Sampling Distributions	4	Last day to withdraw (June 1 <sup>st</sup> )
4	6/3	Probability & Sampling Distributions Probability Theory Introduction to Inference	4 5 6	
	6/5	Introduction to Inference	6	
5	6/10	Introduction to Inference Inference for Distributions	6 7	
	6/12	Inference for Distributions Inference for Proportions	7 8	
6	6/17	Review for the Final		
	6/19	Final Exam (Ch.6 to 8)		

Assignment	Chapter	Point	Due	Assignment	Chapter	Point	Due
1	1, 2, 3	10	May 26 (Sun.)	3	6, 7, 8	12	June 16 (Sun)
2	4, 5	8	June 9 (Sun)				
Quiz	Chapter	Point	Date	Quiz	Chapter	Point	Date
1	1, 2	6	May 22 (Wed.)	3	6	5	June 10 (Mon.)
2	4	4	June 5 (Wed.)	4	7	5	June 12 (Wed.)