

## Probability and Statistical Inference for Economists

Instructor: Hyeon Kim  
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Classroom and Schedule:  
WEB L114, T. H. 9:10 - 10:30 am  
Office Hours: By appointment or  
T. H. 10:30 - 11:30 am

### Course Description

We will study distribution, probability 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 summary, understand the foundations of probability theory and various features of distributions and make inferences based on point and interval estimators using hypothesis testing.

### Course Materials

The classes will be based on lecture notes (pdf) and presentation files (powerpoint) and you can download them from Web CT (<http://webct.utah.edu>). In addition, there is an optional textbook: 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 pop quizzes, assignments, and three closed-book in-class exams (two midterms and final) (Quiz: 10%; Assignments: 30%; Two Midterms: 30%; and Final: 30%). The official course grade will be based on the sum of the grade you have made on quizzes, assignments and three exams. Tentative grading scale: A range  $\geq 90$ ; B range  $\geq 75$ ; C range  $\geq 60$ ; D range  $\geq 50$  (it can be adjusted based on 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	8/23, 25	Intro. ; Examining Distributions	1	
2	8/30, 9/1	Examining Distributions	1	Last day to drop (delete) (Aug. 31)
3	9/6	Examining Distributions	1	
	9/8	Examining Relationships	2	
4	9/13	Examining Relationships	2	
	9/15	Producing Data	3	
5	9/20	Review for the Midterm #1		
	9/22	Midterm #1		
6	9/27, 29	Probability & Sampling Distributions	4	
7	10/4	Probability & Sampling Distributions	4	
	10/6	Probability Theory	5	
8	10/11, 13	No Class		Fall Break (Oct. 10 ~ 15)
9	10/18	Probability Theory	5	
	10/20	Review for the Midterm #2		Last day to withdraw (Oct., 21)
10	10/25	Midterm #2		
	10/27	Introduction to Inference	6	
11	11/1, 3	Introduction to Inference	6	
12	11/8, 10	Introduction to Inference	6	
13	11/15,17	Inference for Distributions	7	
14	11/22	Inference for Distributions	7	
	11/24	No Class		Thanksgiving Break
15	11/29	Inference for Distributions	7	
	12/1	Inference for Proportions	8	
16	12/6	Inference for Proportions	8	
	12/8	Review for the Final		
	12/14	Final Exam (8 ~ 10 am on Wed.)		

Assignment	Chapter	Point	Due	Assignment	Chapter	Point	Due
1	1	5	Sep. 9	5	5	3	Oct. 21
2	2	3	Sep. 19	6	6	5	Nov. 14
3	3	2	Sep. 19	7	7	5	Nov. 25
4	4	5	Oct. 7	8	8	2	Dec. 9