

## Introduction to Statistics and Econometrics

Lectures: (M001) Mon/Wed, 2:15pm - 3:35pm, Crouse-Hinds Hall 101  
(M002) Mon/Wed, 12:45pm - 2:05pm, Crouse-Hinds Hall 101  
Instructor: Prof. Yoonseok Lee (Eggers 426; [ylee41@maxwell.syr.edu](mailto:ylee41@maxwell.syr.edu))  
Office Hour: Mon, 3:35pm - 4:35pm  
TA: (M001 & M002) Guanyu Liu (Eggers 042; [gliu03@syr.edu](mailto:gliu03@syr.edu))  
OH: Tue, 3:00pm - 4:30pm

### Course Description

This course provides basic knowledge of probability, statistics and regression analysis for undergraduate economics majors. The course is intended for BA economic students and is not a substitute for ECN 521 and/or ECN 522. Upon completion of this course, students can read empirical literature in economics and carry out their own basic economic data analysis. No prior knowledge of statistics is assumed, though college-level calculus is expected. No credit is granted to those who have completed or are enrolled in ECN 521 and/or ECN 522. (*Prerequisites: ECN [301 or 311] and ECN 302; Declared majors and minors only*)

The class web page is available at <http://blackboard.syr.edu>. Announcements, problem sets, and course materials are to be posted there, so make sure to visit the site frequently. Hard copies of these materials will *not* be distributed.

### Textbooks and Software

The textbook for the course is:

Keller, G. (2015). *Statistics for Management and Economics*, Abbreviated, 10th ed., Cengage Learning.

E-Book is also available. Most of the problem set questions are from this textbook. If you want more advanced (and more math-involved) textbook, the following one would be helpful, which is not required for this course though:

Hogg, R.V., E.A. Tanis, and D. Zimmerman (2014). *Probability and Statistical Inference*, 9th ed., Pearson.

Some lectures, problem sets, and quizzes use MS Excel as a basic statistical software. Students are encouraged to bring their own laptop computers for the following three computer session days:

Sep. 4th; Nov. 13th; Nov. 20th

Students need to activate the Add-In "Analysis ToolPak" in MS Excel. The MS Excel and its add-in is also available in the campus computers, e.g., in the libraries or computer labs.

## Organization and Evaluation

The grade is based on problem sets and quizzes; there are no extra midterm or final exams. The grading breakdown is as follows:

Quizzes 75%;    Problem Sets 25%

Four quizzes are scheduled as follows:

[Quiz I ]	Sep. 18th (W)	in-class
[Quiz II ]	Oct. 14th (M)	in-class
[Quiz III]	Nov. 6th (W)	in-class
[Quiz IV]	Dec. 4th (W)*	take-home

Quiz IV on Dec. 4th is a take-home quiz; the exam is to be posted on Dec. 3rd on the Blackboard web site and it is due by 4:00pm on Dec. 4th. All other quizzes are in-class closed-book exams. *No makeup quizzes nor early quizzes will be given for any reasons. Any incident of academic dishonesty will result in an F grade for the course.*

Three problem sets are to be posted on the Blackboard web site as on the following schedule:

	posting date	due date
Problem Set 1:	Aug. 26th (M)	Sep. 16th (M)
Problem Set 2:	Sep. 23rd (M)	Oct. 9th (W)
Problem Set 3:	Oct. 16th (W)	Nov. 4th (M)

Students are encouraged to form study groups and collaborate with other students to work on problem set questions.<sup>1</sup> However, each student should turn in his/her own problem set (at the beginning of the class on each due date). The quiz questions are similar to the problem set questions as well as examples during the class/sessions.

## Course Outline and Schedule

### I. Probability

1. Introduction and Descriptive Statistics (Ch 1 - 4)
2. Probability Theory (Ch 6)
3. Random Variables and Distribution Theory (Ch 7.1 - 7.3)
4. Important Distributions (Ch 7.4 - 7.5, 8)

### II. Statistical Inference

1. Sampling Distribution (Ch 5, 9)

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<sup>1</sup>A word of advice: When you write the solution, provide the major steps of your calculation as you are taking a quiz. It is a good training for organizing and explaining your idea. When you are taking the quizzes, you will not be able to get the full credit if you simply write down the final answers without providing details.

2. Interval Estimation (Ch 10)
3. Hypothesis Testing (Ch 11 - 13)

### III. Regression Analysis

1. Linear Regression Model (Ch 16)
2. Least Squares Estimation (Ch 16)
3. Multiple Regression (Ch 17)

#### *ℓ ℓ* Class Schedule *h h*

Date	Coverage
8/26 (M)	Introduction & Descriptive Statistics
8/28 (W)	Descriptive Statistics
9/02 (M)	- <i>Labor Day</i> -
9/04 (W)	Computer Session
9/09 (M)	Probability Theory
9/11 (W)	Probability Theory
9/16 (M)	Problem Solving Session (Problem Set 1 due)
9/18 (W)	Quiz I
9/23 (M)	Random Variables & Distribution
9/25 (W)	Random Variables & Distribution
9/30 (M)	Problem Solving Session
10/02 (W)	Important Distributions
10/07 (M)	Important Distributions
10/09 (W)	Problem Solving Session (Problem Set 2 due)
10/14 (M)	Quiz II
10/16 (W)	Sampling Distribution
10/21 (M)	Interval Estimation
10/23 (W)	Problem Solving Session
10/28 (M)	Hypothesis Test
10/30 (W)	Hypothesis Test
11/04 (M)	Problem Solving Session (Problem Set 3 due)
11/06 (W)	Quiz III
11/11 (M)	Linear Regression
11/13 (W)	Computer Session
11/18 (M)	Linear Regression
11/20 (W)	Computer Session
11/25 (M)	- <i>Thanksgiving Break</i> -
11/27 (W)	- <i>Thanksgiving Break</i> -
12/02 (M)	Problem Solving Session
12/04 (W)	Take-home Quiz IV due (post on 12/03)

Note: The schedule can be changed based on the class performance. Students should attend all the regular lectures, sessions, and quizzes.

**Academic Integrity** Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information about the policy, see <http://class.syr.edu>.

**Accommodations for Students with Disabilities** If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), visit the ODS website— <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.