Introduction to Statistics and Econometrics

Lectures:	(M001) Mon/Wed, 2:15pm - 3:35pm, Online Synchronous
	(M002) Mon/Wed, 12:45pm - 2:05pm, Online Synchronous
Instructor:	Prof. Yoonseok Lee (Eggers 426; `ylee41@maxwell.syr.edu`)
Office Hour:	Wed, 8:00pm - 9:00pm, Online
TA:	(M001 & M002) Zhanhan Yu (`zyu127@syr.edu`)
	OH: Tue., 9:00am - 11:00am, Online

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 website is available at `http://blackboard.syr.edu`. Students need SUID to access the course website. Announcements, problem sets, quizzes, and course materials are to be posted there, so make sure to visit the site frequently.

All the lectures are online synchronous sessions at the regular class schedule. All the office hours are also held online. The online class/office-hour links and the passcode information is posted in the Blackboard class website. Attendance in all the regular classes is expected; all students are required to join each Zoom sessions with their full names and turn on their cameras during the lecture though the microphones should be muted upon entry. The attendance is automatically tracked. *Missing more than three attendance checks will automatically result in an F grade for the course.*

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:

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

Some lectures, problem sets, and quizzes require to use MS Excel as a statistical software. Students are required to participate the following three computer sessions and learn basic data analysis with MS Excel:

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.

Organization and Evaluation

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

Quizzes 70%;   Problem Sets 30%

Four quizzes are scheduled as follows:

	quiz date	format
Quiz I :	Sep. 14th (M)	online synchronous at the regular class time, closed-book
Quiz II :	Oct. 7th (W)	online synchronous at the regular class time, closed-book
Quiz III:	Nov. 2th (M)	online synchronous at the regular class time, closed-book
Quiz IV:	Nov. 18th (W)	take-home, submission due 3:00pm EDT, Nov. 19th (Th)

Quiz I, II, and III are online synchronous closed-book exams at the regular class time. The quiz question is available at the beginning of each quiz. They are remotely proctored; each student participates in the quiz at the regular online session with a camera on. Right after the quiz is completed, each student scans or takes a photo of the quiz and uploads it at the assigned link in the Blackboard. Further details on the online synchronous quiz is to be posted on the Blackboard Announcement before each quiz.

Quiz IV on Nov. 18th is a take-home quiz; the exam is to be posted on the Blackboard class website by 1:00pm EDT on Nov. 18th and it is due by 3:00pm EDT on Thursday, Nov. 19th. *Because all quizzes are online and take-home, no makeup quizzes nor early quizzes will be given. Once the quizzes are posted, students are not allowed to discuss about the quizzes with anyone; any incident of academic dishonesty will result in an F grade for the course.*

Prior to each take-home quiz, problem sets are to be posted on the Blackboard, so that students can prepare for the upcoming quiz. They are on the following schedule:

	posting date	due date
Problem Set 1:	Aug. 24th (M)	Sep. 9th (W), 12:30pm EDT
Problem Set 2:	Sep. 16th (W)	Oct. 5th (M), 12:30pm EDT
Problem Set 3:	Oct. 12th (M)	Oct. 28th (W), 12:30pm EDT
Problem Set 4:	Nov. 4th (W)	*no need to turn in*

Students are encouraged to form study groups and collaborate with other students to work on problem set questions.[1] However, each student should turn in his/her own problem set. The quiz questions are similar to the problem set questions as well as examples during the class/sessions.

---

[1]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.

Students in Different Time Zones

If any student cannot attend the online synchronous sessions at the regular class time, because of being in a different time zone, student should notify it in advance. Each lecture is to be recorded and posted on the Blackboard class website for those students. However, each recorded lecture is to be available only for 24 hours after it is posted and it cannot be downloaded, so students should watch each class video as soon as it becomes available. (The system reports which students have watched recordings and the report is to be used for the purpose of attendance check for those students.) The recording is open to any students in the class, so students can watch the class video even though s/he already attended the regular session.

Original class materials (handouts, assignments, quizzes, etc.) and recordings of class sessions are the intellectual property of the course instructor. Student may not provide these materials to other parties (e.g., web sites, social media, other students) without permission. Doing so is a violation of intellectual property law and of the student code of conduct.

For the students who stays in different time zones and hence cannot take the quizzes during the regular class time, the following alternative quiz schedule is set. No other options are to be available. Note that the schedule is in EDT, so make sure to check the exact time and date on your local time.

alternative quiz schedule	
Quiz I :	Sep. 14th (M), 8:00pm - 9:20pm EDT
Quiz II :	Oct. 7th (W), 8:00pm - 9:20pm EDT
Quiz III:	Nov. 2th (M), 8:00pm - 9:20pm EDT

Detailed information including the zoom link for the remote quiz is to be provided before each quiz. Except for the different schedule, all the policies of the regular quiz apply. There is no alternative schedule for Quiz IV (take-home). The Quiz IV is to be still posted on the Blackboard by 1:00pm EDT on Nov. 18th and its due is the same as the rest of the class: due by 3:00pm EDT on Nov. 19th. In addition, there is no alternative schedule for the Problem Sets; each Problem Set due is the same as above.

Every student who chooses to take this alternative quiz schedule *should get permission from the instructor during the first week of the semester.* Only those who have permission can take quizzes on this alternative schedule; and once they choose this option, they cannot take quizzes during the regular class time. Any communications with other students who already took the quizzes during the regular class time violates academic integrity expectations in this course.

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)

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)

<< **Class Schedule** >>

Date	Coverage
8/24 (M)	Introduction & Descriptive Statistics
8/26 (W)	Descriptive Statistics & Set Theory
8/31 (M)	Computer & Problem Solving Session
9/02 (W)	Probability Theory
9/05 (**Sat**)	Probability Theory
9/07 (M)	Probability Theory
9/09 (W)	Problem Solving Session (Problem Set 1 due)
9/14 (M)	Quiz I
9/16 (W)	Random Variables & Distribution
9/21 (M)	Random Variables & Distribution
9/23 (W)	Problem Solving Session
9/28 (M)	Important Distributions
9/30 (W)	Important Distributions
10/05 (M)	Problem Solving Session (Problem Set 2 due)
10/07 (W)	Quiz II
10/12 (M)	Sampling Distribution
10/14 (W)	Interval Estimation
10/19 (M)	Problem Solving Session
10/21 (W)	Hypothesis Test
10/26 (M)	Hypothesis Test
10/28 (W)	Problem Solving Session (Problem Set 3 due)
11/02 (M)	Quiz III
11/04 (W)	Linear Regression and Least Squares
11/09 (M)	Computer & Problem Solving Session
11/11 (W)	Multiple Regression
11/16 (M)	Computer & Problem Solving Session
11/18 (W)	Quiz IV (take-home; due 11/19 (Th))
11/23 (M)	Extra Topics

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

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. Syracuse University 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.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. All academic integrity expectations that apply to in-person quizzes and exams also apply to online quizzes and exams. In this course, all work submitted for quizzes and exams must be yours alone. Discussing quiz or exam questions with anyone during the quiz or exam period violates academic integrity expectations for this course. Using websites that charge fees or require uploading of course material (e.g. Chegg, Course Hero) to obtain exam solutions or assignments completed by others and present the work as your own violates academic integrity expectations in this course.

Accommodations for Students with Disabilities Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to contact me to discuss strategies that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process.

If you would like to discuss disability-accommodations or register with CDR, please visit Center for Disability Resources. Please call (315) 443-4498 or email disabilityresources@syr.edu for more detailed information. The CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.