
Econ 102B: Applied Econometrics

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Lectures: Building 370, Room 370, M/W 4:30pm – 6:20pm
Office Hours: Monday 6:30pm – 7:30pm, Wednesday 6:30pm – 7:30pm, or by appointment

Course Overview:

Economics 102B is the second course in the two-part sequence of core courses within the Department of Economics curriculum dedicated to probability and statistics. This course uses many of the ideas discussed in Econ 102A to advance one's knowledge of fundamental concepts within statistics and econometrics.

The primary goal of the course is to introduce students to regression analysis. Topics covered include the simple linear regression model, interval estimation and hypothesis tests on regression parameters, prediction, multiple regression, omitted variable bias, multicollinearity, joint tests of significance, regression with indicator variables, simultaneous equation models and instrumental variables. Students also gain experience using the software program STATA as a means to run regressions.

Although regression analysis is the focal point of Econ 102B, the course also extends the discussions from Econ 102A regarding confidence intervals and hypothesis tests (the last topics covered in Econ 102A). In particular, Econ 102B discusses confidence intervals and hypothesis tests on population variances (as opposed to population means from Econ 102A) as well as hypothesis tests in each of the following realms: (1) comparing variances between two populations, (2) goodness of fit, and (3) independence.

Prerequisites: Econ 102A

Econ 102B presumes knowledge of probability trees, correlation, the variance of dependent variables, the central limit theorem, and both one-population and two-population confidence intervals and hypothesis tests from Econ 102A. Econ 102B also assumes familiarity with economic elasticities as well as demand and supply lines as discussed in other economics courses. Since Econ 102B also uses STATA software, computer experience would be preferable.

Textbook (Required):

The required textbook for the course is:

Hill, R. Carter, Griffiths, William E., Lim, Guay C., *Principles of Econometrics*, 4th Edition, John Wiley & Sons, 2011.

In addition to the primary textbook, lecture notes will be posted on Canvas each week. These notes contain handouts explaining and summarizing important concepts, worksheets which will be completed in class as well as practice exercises and solutions.

Canvas site:

We will make extensive use of our online course page throughout the quarter. You should check the site regularly. Here we will post the weekly lecture notes as well as homework assignments, solutions, practice examinations and other supplemental information.

Economics Department Common Course Policies:

All courses taught in the Stanford Department of Economics are governed by a common set of course management rules. A document explaining these rules may be found on the Economics Department site at <http://economics.stanford.edu/undergraduate/major/economics-common-syllabus>. Please be sure to read this document in its entirety.

Privacy of Course Materials:

The materials posted on Canvas are meant solely for students attending Econ 102B this quarter. Unfortunately, in the past, some students have supplied online educational sites (such as Course Hero) with the Econ 102B materials after completion of the course. You do not have the instructor's permission to supply the Econ 102B course materials to any online site (such as Course Hero) which posts course-specific material for general viewing. Doing so could place you in violation of the Stanford Honor Code.

You should also not be viewing any Econ 102B examination or assignment solutions from previous years. Further, you should not be supplying any of this quarter's course materials to students who will take Econ 102B in a subsequent quarter. Using previous materials not supplied to the whole class and/or providing course materials to students who will take the course at a later time could place you in violation of the Stanford Honor Code.

Students with Documented Disabilities:

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an accommodation letter for faculty dated in the current quarter in which the request is made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. In particular, students are asked to secure this letter at least two weeks prior to any examination dates so as to provide ample time for the Economics Academic Office to accommodate the OAE recommendations. In other words, students should not be providing their OAE letters to either the instructor or the Economics Academic Office literally a day or two before an examination.

A Few Course Rules:

Any student who commits to take this course thereby agrees to the following rules:

- (1) Regular class attendance is expected. If a student chooses not to attend lecture (or only attend lecture infrequently) the instructor reserves the right to lower the student's course grade accordingly. For those taking the course Credit / No Credit, failure to attend class regularly could be considered sufficient grounds for a student to receive no credit. Taking another Stanford course which meets at the same time as Econ 102A lectures **does not** constitute an acceptable reason for students to miss lecture.
- (2) Any re-grading of assignments, midterms or final examinations must be done through the teaching assistants. Your course instructor can provide you with the name of the teaching assistant who graded the exercise in question, but it is this teaching assistant who has the final say in the amount of credit you ultimately receive.
- (3) All examination days and times are set in stone and shown on this syllabus (please see the Examinations section below). Students may not take midterms or final examinations at alternate times due to personal conflicts or multiple examinations on the same day. This policy is described in the Economics Department Common Course Policies document referenced above.
- (4) If a student adds the course after the second week of the quarter and misses one or more assignments, a zero will be assigned as that student's grade for all missed assignments (since the answers will already have been posted). These students are not allowed to waive such assignments in the determination of their final grade. Unfortunately, no student will be allowed into the course after the Final Study List Deadline has passed.
- (5) Students must be physically present in class when taking any course examination. That is, students may not take an exam at a remote location and submit their exam via fax, e-mail or any other similar means. The only exception to this rule is for current varsity athletes who are traveling with their team during a scheduled exam. In such cases, students will have their exam proctored by a member of the coaching staff of their respective sport.

(6) Unfortunately, there is no opportunity for extra credit in the course either during the course or after the course has ended. Often, when students do not meet their own expectations on exam performance, many ask for an extra credit opportunity. Since virtually all students in the course would welcome a chance to improve their standing, it is not possible to offer extra credit to only certain individuals in the class.

Assignments:

There will be five individual assignments throughout the quarter. The anticipated timing of these five assignments is given in the table below (these dates are subject to change).

Assignment	Due Date
Assignment 1	Wednesday, January 25th
Assignment 2	Friday, February 3rd
Assignment 3	Monday, February 13th
Assignment 4	Monday, March 6th
Assignment 5	Friday, March 17th

The grading of the assignments works as follows: for each particular assignment five questions will be chosen for grading. Although individual assignments will have more than five questions, students will not know beforehand which specific five questions will be graded and which will not. Each specific exercise chosen for grading receives a maximum of five points. So, each assignment carries a maximum of 25 points.

Please note that *all* assignments contribute to one's final grade; no assignment scores are dropped. Solutions to all assignments will be posted on Canvas.

Assignments due on Fridays are due at the time your discussion section meets. That is, the assignments are turned in during your section meeting. The assignments due on non-Fridays are due during our class lecture time. The penalty for late assignments (except Assignment 3 and Assignment 5) is as follows:

- Assignments submitted after the due date time but before midnight of the same day are discounted by 25%.
- Assignments submitted the day after the due date are discounted by 50%.
- Assignments submitted two or more days after the due date receive no credit.

The above rules do not apply to Assignment 3 or Assignment 5 as these assignments are turned in just before the midterm examination and final examination respectively. Because the solutions to these assignments must be posted promptly (as a study guide for the examinations) both Assignment 3 and Assignment 5 must be turned in on time in order to receive credit.

Examinations:

We will have one midterm during the quarter and a final examination at the conclusion of the course. The exam timing is as follows:

Examination	Date
Midterm Examination (Week 6)	Wednesday, February 15th
Final Examination (Week 11)	Friday, March 24th 3:30pm – 6:30pm

Please make sure you are able to attend these examination times. Unfortunately, Economics Department policy does not allow for examination times to be rescheduled.

Grading:

Grades will be based on the aforementioned assignments and examinations. The specific contribution of each of these deliverables toward the final grade is as follows:

Assessment Method	Contribution Toward Final Grade
Assignments	25%
Midterm Examination	30%
Final Examination	45%

Your final grade in this course is based on your performance as compared to the class median performance. Once your scores on the assignments, midterm examination and final examination are known, each is weighted in accordance with the above table to determine your 'raw score' for the course. Your raw score is then compared to the median raw score among all class members. The median raw score determines the B+ / B borderline. Then, grades are assigned in accordance with the following guidelines:

- ... raw scores more than 1.5 standard deviation *above* the median receive an A+
- ... raw scores between 1 and 1.5 standard deviations *above* the median receive an A
- ... raw scores between 0.5 and 1 standard deviation *above* the median receive an A–
- ... raw scores between 0 and 0.5 standard deviations *above* the median receive a B+
- ... raw scores between 0 and 0.5 standard deviations *below* the median receive a B
- ... raw scores between 0.5 and 1 standard deviation *below* the median receive a B–
- ... raw scores between 1 and 1.4 standard deviations *below* the median receive a C+
- ... raw scores between 1.4 and 1.8 standard deviations *below* the median receive a C
- ... raw scores between 1.8 and 2.2 standard deviations *below* the median receive a C–

... raw scores between 2.2 and 2.6 standard deviations *below* the median receive a D+

... raw scores between 2.6 and 3 standard deviations *below* the median receive a D

... raw scores between 3 and 3.4 standard deviations *below* the median receive a D–

... raw scores lower than 3.4 standard deviations *below* the median receive a ‘No Pass’

For those students taking the course Credit / No Credit, a grade of C– or higher must be attained in order to receive ‘Credit.’