

Quantitative Finance
Course Number: 22:839:654
Course Title: Econometrics

COURSE DESCRIPTION

Econometrics studies relationships in real life data. We are going to learn how one variable, y , depends on the other variables, x , and how to forecast variable y . This area of Econometrics is called *simple regression*.

We will then study multivariable regression and logistic regression. One of the goals of the course is to understand the assumptions of linear regression models and to be able to perform a rigorous analysis of data to see if there are serious violations of those assumptions.

Along with theoretical material we will work with real life data using statistical package *R*.

COURSE MATERIALS

- **Textbooks**

1. (Good introductory text) Author:
Jeffrey M. Wooldridge
Title: Introductory Econometrics (A Modern Approach)
Edition: 6th (2015) or 7th (coming up) --- the students can use either edition
Publisher: Cengage Learning
2. (More advanced text)
Author: Fumio Hayashi
Title: Econometrics
Publisher: Princeton University Press
Year: 2000

Additional reading material may be introduced during the course

Check the course website on Canvas and your official Rutgers email account regularly

- Software: *MS Excel* and *R* will be used to illustrate all concepts.

PREREQUISITES

Multivariable Calculus, Linear Algebra, good knowledge of basic Probability and Statistics.

ACADEMIC INTEGRITY

I do NOT tolerate cheating. Students are responsible for understanding the RU Academic Integrity Policy

<http://academicintegrity.rutgers.edu/>

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See business.rutgers.edu/ai for more details.

GRADING POLICY AND EXAMS

There are following graded item in the course:

- Homework;
- Final Project;
- Final Exam.

The final grade will be a weighted average of these items using the weighted scheme indicated below.

- **Homework problems** are to be done in groups and have to be solved regularly and uploaded by the deadline on Canvas. Any student can be asked to explain their solutions at any time during the semester. No late homework will be accepted for any reason, but the lowest grade will be dropped at the end of the semester.
- The **Final Project** is to be done in groups and is due. Sample topics will be provided. Students are welcome to pick their own topic if its realization uses the methods discussed in class.
- The **Final Exam** (cumulative) . Tentatively it will be in person. The format of the exam is closed-book, closed-notes. Please bring only pencils, pens, erasers, and your Rutgers ID card with you to the exam. All course materials will be relevant to the exam. There will be no make-up final exam, you will receive a score of zero if you miss the exam.

You need to score at least 40% on the Final Exam to pass the course.

- Grading distribution:

Homework 25%
Final Project 34%
Final Exam 41%

- There are no opportunities for extra credit except the ones provided in class and the exam.

- Grade allocation:

Weighted average of graded items Corresponding grade

| | |
|----------|----|
| [92, +) | A |
| [90, 92) | A- |
| [84, 90) | B+ |
| [76, 84) | B |
| [70, 76) | B- |
| [64, 70) | C+ |
| [56, 64) | C |
| [50, 56) | C- |
| [40, 50) | D |
| [0, 40) | F |

- All (partial) scores received throughout the course will be added to the *Gradebook* on the Canvas course website.
- Your partial scores/final grades are not subject to negotiation. If you feel I have made an error, submit your written argument to me within one week of receiving your grade/score. Clarify the precise error I made and provide all supporting documentation. If I have made an error, I will gladly correct it. But I will adjust grades only if I have made an error.

ATTENDANCE POLICY

The University is committed to a culture of academic engagement between students and faculty. Part of this commitment involves taking responsibility for attending your classes, workshops and exams, and informing your instructors when you cannot attend.

If you are absent from a class or exam for any reason, please **email the instructor**.

All students are expected to bring a positive attitude to the classroom, and to respect the learning environment. This means, at a minimum, that no student will disrupt the learning environment, even in small ways, which includes sending or receiving text messages, or surfing the internet, or tweeting, or talking to other students about anything unrelated to the subject matter at hand. So, **PLEASE NO CELL PHONES, COMPUTERS or OTHER ELECTRONIC DEVICES IN**

CLASS unless you are asked to use them.

Please notice that office hour time is reserved for students who have attended class; it is not for giving private classes to students who did not attend at the scheduled time, however good their reasons.

I understand that you might have to miss a class or two during the semester. In this case, you are encouraged to obtain class notes from your peers, read the textbook and come to office hours to clarify any topics you have difficulty with. **If you miss three or more classes, the instructor reserves a right to lower your course grade by one letter grade.**

Late arrivals and earlier departures are considered as a missed class.

Participation

You are expected to actively participate in the course. This participation can consist of in-class discussions and visits to office hours.

The most active participants will get a bonus at the end of the course.

Time commitment

This is a challenging course.

Mastering the material of this course requires time. I would estimate that successful students should spend at least 7 hours per week to review the material and solve problems, and more than that before major exams.

| ... There have been many studies of elite performers –concert violinists, chess grand masters, professional ice-skaters, mathematicians, and so forth - and the biggest

| difference researchers find between them and lesser

| performers is the amount of deliberate practice they've accumulated. Indeed, the most important talent may be the talent for practice itself.

| Gawande A., "The Learning Curve", *The New Yorker*,

| January 28, 2002, p.52-61.

I want you to do well in this class. Your approach should be learning concepts thoroughly and practicing with a variety of problems. You are warmly invited to ask questions in class and in office hours. Feel free to let me know if you have any problems with the class and express your concerns during the semester. Your feedback is always welcome!

CAUTION: The information in this syllabus is subject to change, as announced in class or via email/Canvas. No major changes are anticipated, but you are expected to attend class and check email regularly.

COURSE SCHEDULE

The course follows the Rutgers Academic Calendar, which can be found here: <https://scheduling.rutgers.edu/scheduling/academic-calendar>.

SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at ods.rutgers.edu.

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email dsoffice@echo.rutgers.edu]

[Rutgers University-Newark ODS phone (973)353-5375 or email ods@newark.rutgers.edu]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email jackie.moran@rutgers.edu]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email TitleIX@newark.rutgers.edu]

If you seek **religious accommodations**, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email deanofstudents@echo.rutgers.edu]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email DeanofStudents@newark.rutgers.edu]

If you have experienced any form of **gender or sex-based discrimination or harassment**, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7 . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at TitleIX@newark.rutgers.edu. If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email run.vpva@rutgers.edu]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu> .

If you are a military **veteran** or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of **mental health** services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of **physical health** services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of *legal* services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to *English as a second language (ESL)* should contact the Program in American Language Studies for supports.

[Rutgers–Newark: PALS@newark.rutgers.edu]

[Rutgers–New Brunswick: eslpals@english.rutgers.edu]

If you are in need of additional *academic assistance*, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]