

Finance
Course Number: 29:390:300
Course Title: Financial Econometrics

COURSE DESCRIPTION

Financial experts and economists often study the relationships between variables. We may, for example, investigate the relationship between risk and return or the relationship between education and income. To do that, we gather and analyze economic/financial data. In this course, you will study the techniques financial experts and economists use to analyze these data. In the end, these tools will allow you to either confirm or refute whether an economic theory actually operates in the real world.

COURSE MATERIALS

- **Textbook**

Author *Jeffrey M. Wooldridge*
Book title *Introductory Econometrics (A Modern Approach) - 6th edition*
Year *2015*
Publisher *Cengage Learning*
ISBN *978-1-305-27010-7*

- Note: If you prefer, you may also work with the 5th edition of the Wooldridge textbook; either the U.S. edition or the international edition.
- Check the course website on Canvas (canvas.rutgers.edu) and your official Rutgers email account regularly.
- Software: Microsoft Excel (including the Add-in *Analysis ToolPak*) is the minimum software requirement for this course. Assignment should be submitted in Excel. Note that the operating system for the course is Windows.

LEARNING GOALS AND OBJECTIVES

This course is designed to help students develop skills and knowledge in the following area(s):

- **Knowledge.** Acquiring knowledge in business and, in particular, in the specialized major area “Finance” requires a thorough understanding of statistical analyses and techniques. A knowledge of econometrics will be necessary to *e.g.* evaluate financing decision of the firm, analyze investments in financial instruments, and/or study the characteristics of global financial markets and institutions.

Students who complete this course will demonstrate:

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- proficiency at using current software tools (Microsoft Excel) to manage financial and economic data and address practical business problems.
 - ability to apply appropriate quantitative methods to analyze data, and to apply quantitative modeling techniques to analyze business, financial, or economic decisions.
- **(Ethical) Judgment.** Throughout the course, students are encouraged to carefully question the assumptions underlying a statistical estimation, and make a corresponding responsible decision.

Students who complete this course will demonstrate:

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- recognition of the limitations of statistical/econometric techniques.

Students develop these skills and knowledge through the following course activities and assignments:

- *Lectures.* Class lectures will cover a recapitulation of algebra, probability theory, and mathematical statistics, before delving into the basics of econometrics. Particular emphasis will be placed on the immediate transferability of theoretical concepts to practical understanding. To that end, a fraction of each lecture will feature a demonstration of econometric tools in Microsoft Excel.
- *Homework Assignments.* Homework is assigned to reinforce concepts in the course and for students to practice newly acquired skills. Homework will be assigned weekly and is to be completed in Microsoft Excel.
- *Tests.* The course includes two exams to formally assess students knowledge and comprehension. Tests consist of multiple-choice questions covering theoretical econometrics. The exam format is “closed book”. The midterm exam will be reviewed in class (directly afterwards) to ensure knowledge transfer. The final exam has a second part, which will be a “hands-on” computer assignment.

PREREQUISITES

21:640:119 or 21:640:135, and 29:623:340

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.

ATTENDANCE AND PREPARATION POLICY

Attendance is not part of your grade. However, there is a very strong relationship between attendance and grades.

Students will be responsible for all work missed during an absence, no matter what the reason for the absence.

For weather emergencies, consult the campus home page. If the campus is open, class will be held.

GRADING POLICY AND EXAMS

- There are **four** graded items in this course: *Computer Assignments*, *Quizzes*, *Midterm Exam*, *Final Exam*. You will receive a separate score between 0 and 100 for each of the four items. The final grade will be a weighted average of the four items using the weighting schemes indicated below.
- The best way to learn econometrics is through practice. At the end of each lecture, a set of **Computer Assignments** will be handed out. You are asked to complete these individually and submit them ~~before~~ the following lecture. These computer assignments will be part of the final grade; understanding the problems will substantially assist students in learning the course material and performing well on the exams.

Assignments should be submitted in Excel and should be uploaded to the appropriate electronic dropbox (“Assignments” tab) on the Canvas course website. Please do not attempt to submit your assignments via email! You should ensure that Excel formulas/procedures used to obtain solutions are traceable for the grader, and you are asked to highlight final results. All submitted homework computer exercises have to be saved as “Excel Workbooks”. They should not be saved in any other format; that is e.g. “Excel Macro-Enabled Workbook”, “Excel Binary Workbook”, etc. are not acceptable formats (since we cannot open these files without risk). Before you upload your file to the Canvas-dropbox, double-check that the file name is “**YOURNAME.xlsx**” (if you are using a very old Excel version from before 2003, you can also save your work as “**YOURNAME.xls**”). Students can submit as many versions as they please to the electronic dropbox; only the last submission will be graded, however.

Forgiveness policy: there are 12 computer assignments in total; the score for the worst computer assignment set is discarded. No make-up exercises are possible. You will receive a score of zero

(for the respective assignment) if you fail to submit/submit late. The deadline for submission is 100% non-negotiable. You will also receive a score of zero if plagiarism is being detected; in addition, I reserve the right to file an official plagiarism report.

- There will be 2-4 short **Quizzes** given at random dates throughout the semester during regular class hours. The format of the quizzes is closed-book with multiple-choice questions.
- The **Midterm Exam** is scheduled for (), during regular class hours. The format of the exam is closed-book with multiple-choice questions. Students have 1 hour and 20 minutes to complete the exam. The material covered in the exam will be the following chapters from the textbook and the corresponding material from the lectures:
 - Chapter 1
 - Appendix A – Appendix B – Appendix C
 - Chapter 2
 - (Parts of) Chapter 3 - *This is tentative and depends on whether the material will have already been covered in the lectures before before (). A corresponding announcement will be made on Canvas, at least one week before the midterm.*

There will be no make-up exams. You will receive a score of zero if you miss the exam.

Only pencils, pens, erasers, a calculator, and your Rutgers ID card will be allowed in the exam. Other items must be placed at the front of the classroom. Please note that only standard calculators (with the basic functions) will be permitted; you will not be permitted to use graphing calculators or cell phone calculators. You will be randomly assigned to a seat.

- The **Final Exam** will most likely be given on (). This date is tentative and subject to room availability. The definite exam date will be confirmed via Canvas, at least () prior to the exam. The exam will consist of two parts, which will be equally weighted:
 1. The first part is a closed-book exam with multiple-choice questions. Students have 1 hour and 20 minutes to complete this part.
 2. The second part will be in the computer lab; a “hands-on” type of exam. Exercises are to be completed in Excel. Students have 1 hour and 20 minutes to complete this part.

The material covered in the exam will be the following chapters from the textbook and the corresponding material from the lectures:

- (Parts of) Chapter 3 - *This is tentative and depends on whether the material will have already been covered in the midterm exam. A corresponding announcement will be made on Canvas, at least () before the final.*
- Chapter 4
- Chapter 6
- Chapter 7

There will be no make-up exams. You will receive a score of zero if you miss the exam.

Only pencils, pens, erasers, a calculator, and your Rutgers ID card will be allowed in the exam. Other items must be placed at the front of the classroom. Please note that only standard calculators (with the basic functions) will be permitted; you will not be permitted to use graphing calculators or cell phone calculators. You will be randomly assigned to a seat.

- Grading distribution:
 - Computer Assignments ... 30%
 - Quizzes ... 5%
 - Midterm Exam ... 23%
 - Final Exam ... 42%
- There are no opportunities for extra credit
- Grade allocation:

<u>Weighted average of graded items</u>		Corresponding grade
<u>Minimum</u>	<u>Maximum</u>	
88	100	A
81	87.99	B+
74	80.99	B
67	73.99	C+
60	66.99	C
50	59.99	D
0	49.99	F

- All (partial) scores received throughout the course will be added to the *Grade Center* 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.
- None of the partial scores will be rounded. Only the final score will be rounded to two decimals.

SCHEDULE AND TOPICS

The course follows the Rutgers Academic Calendar, which can be found here: <https://scheduling.rutgers.edu/scheduling/academic-calendar>. Classes will be held every () from () to () in room (), (). We start classes on (). Please note that there will be no lecture on (), due to *Spring Recess*. The last lecture will be held on ().

The following list of topics will be covered.

<i>Chapter</i>	<i>Topic</i>
1	The Nature of Econometrics and Economic Data
Appendix A	Basic Mathematical Tools
Appendix B	Fundamentals of Probability
Appendix C	Fundamentals of Mathematical Statistics
2	The Simple Regression Model
3	Multiple Regression Analysis: Estimation
4	Multiple Regression Analysis: Inference
6	Multiple Regression Analysis: Further Issues
7	Multiple Regression Analysis: Binary (or Dummy) Variables

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.]