Econometrics

ECON-SHU 9301 F01

Brightspace course site https://brightspace.nyu.edu/d2l/home/207129

Fall 2022

Please contact florence.academicsupport@nyu.edu if you have trouble accessing the Brightspace site.

Syllabus last updated on: [Aug.10.2022]

Lecturer Contact Information
Giampiero Gallo

Teaching Assistant: Chengzi Yi

Office Hours: by appointment, in person or via Zoom.

Units earned
4

Course Details
- Thursday, 3:00PM to 5:45PM
- All times are Central European Time (CET). Please note that in Europe, Daylight Saving Time ends Sunday, October 30th, 2022, and clocks will be set one hour earlier.
- Location: Villa Ulivi, Arezzo (ground floor).
- COVID-related details: In the interest of protecting the NYU Florence community, we are closely following CDC and local guidance around COVID-19 and adjusting our recommendations and policies accordingly. Your health and well-being are our top priority.

Course Description
Econometrics allows us to bridge theory about economic behavior both at the macro and the micro levels and measurement, that is the quantification of some observable phenomena. In this course we will take statistical instruments, probability and inference, and apply them to the
workhorse of econometrics, i.e., the linear regression model. In it the goal is to ascertain whether the information we have available in the form of variables measured on individuals is of any use in determining the outcome of a variable of interest. While statistical association is always possible, econometrics is primarily concerned with the capability of this model to be used for prediction (i.e. evaluate the response in correspondence of hypothetical features in an individual), policy analysis (i.e. studying the conditions under which we can think of manipulating some instrument available to the policy maker, think of a tariff on imports, and determine the possible outcome - think of corresponding future growth). We need to navigate through technical dexterity (understanding the tools) and empirical relevance (applying the tools): using R as a programming language (with mostly pre-coded commands) will take away the burden on formula memorization and will allow us to focus on interpretation of the results.

Course Objectives
On completion of this course, students should:
- Have improved their mastery of economic and business related concepts;
- Have performed graphical and quantitative treatment of the theories;
- Have made relevant connections between theory and real world examples, through references to media material, readings or case studies;
Find an increased interest to read economic and business related materials in the media.

Assessment Components
- Academic Commitment**: 10%
- Five Problem Sets: 20%
- Midterm Exam: 30%
- Final Exam: 40%

At the end of each class, we may suggest a Kahoot game with multiple choice questions on the day’s issues, which will be answered via an app to be downloaded from Google Play or Apple Store.

Failure to submit or fulfill any required course component results in failure of the class.

**NB: Commitment: A student’s commitment will be evaluated based on active participation, involvement, and contribution in the course either during class or asynchronously.

Contributions include, but are not limited to class assignments, tasks, discussion boards, office hours, labs, online chat, and/or the viewing of asynchronous course materials and completion of relevant work. If the student is participating remotely in the courses, it is imperative that they communicate regularly with their faculty members.

Assessment Expectations:
- Grade A: The student’s work demonstrates an understanding of the subject that goes beyond assigned course readings. The student writes essays/exam questions that are an original synthesis of source materials, demonstrating the ability to evaluate source material critically. Written arguments are clear, well-organized and well-presented; oral presentations are concise, incisive and supplemented by appropriate visual materials. The student has distinguished himself/herself throughout the course of the semester for his/her contributions to class discussion. The student is regularly turning in answers to Problem Sets which are complete and accurate.
Grade B: The student’s work shows a clear understanding of assigned readings and materials covered in class. The student writes clear, well-organized and well-presented essays/exam questions; oral presentations are concise, incisive and supplemented by appropriate visual materials. The student is prepared in class and asks relevant questions. The student is regularly turning in answers to Problem Sets but they are not complete or accurate.

Grade C: The student’s work shows a basic understanding of the subject treated in assigned readings and covered in class. However, written and/or oral work is deficient in one or more of the following areas: clarity, organization or content. The student’s work is generally in need of improvement. The student has not turned in satisfactory answers to Problem Sets.

Grade D: The student’s work shows occasional understanding of the subject treated in assigned readings and covered in class. Written and/or oral work is deficient in one of more of the follow areas: clarity, organization or content. The student does not participate in class discussion and has not frequented the instructor’s office hours.

Grading Guidelines

Grade Conversion.

Your lecturer may use one of the following scales of numerical equivalents to letter grades:

<table>
<thead>
<tr>
<th>Letter grade</th>
<th>0-100 scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-93</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>B</td>
<td>84-86</td>
</tr>
<tr>
<td>B-</td>
<td>80-83</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
</tr>
<tr>
<td>C</td>
<td>74-76</td>
</tr>
<tr>
<td>C-</td>
<td>70-73</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
</tr>
<tr>
<td>D</td>
<td>65-66</td>
</tr>
<tr>
<td>F</td>
<td>below 65</td>
</tr>
</tbody>
</table>

Attendance Policy

Studying at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. Since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centers is expected promptly when class begins. Attendance will be checked at each class meeting.
Unexcused absences may be penalized with a two percent deduction on the participation component of the final grade for every week's worth of classes missed. Four unexcused absences in one course may lead to a Fail in that course.

As soon as it becomes clear that you cannot attend a class, you must inform your professor and/or the Academics team by e-mail florence.academicsupport@nyu.edu immediately (i.e. before the start of your class). Absences are only excused if they are due to illness, Moses Center accommodations, religious observance or emergencies. For two or more consecutive days of absences due to health reasons, a doctor's note must be submitted in person or by e-mail to the Academics team.

*Please note that remote attendance will only be considered by the Office of Academic Support if for health reasons you are unable to attend class in person after two consecutive days of absence.*

Regardless of whether an absence is excused or not, it is the student's responsibility to catch up with the work that was missed by getting notes from a classmate or meeting with your faculty member during office hours.

Exams, tests and quizzes, oral presentations, and/or important deadlines that are missed due to illness always require a doctor's note as documentation.

For a detailed explanation of the global attendance policy, see the NYU Florence Attendance Policy Flowchart.

The Global Attendance Policy is posted in the Academic Policies tab in Brightspace, on the NYU Florence Student Portal website, and is posted around campus.

After you have read and reviewed the policies, if there is anything that still needs further clarification or raises a question, please reach out to florence.academicsupport@nyu.edu.

**Final exams**
Final exams must be taken at their designated times. Should there be a conflict between your final exams, please bring this to the attention of the Academics team. Final exams may not be taken early, and students should not plan to leave the site before the end of the finals period.

**Late Submission of Work**
All course work must be submitted on time, through Brightspace on the date specified on the syllabus. Solutions are posted right after the deadline, so late submissions get a zero.

**Teaching & Learning Philosophy**
My philosophy is to establish a vivacious environment in the classroom, I thrive among intellectually curious students who go beyond what the assignments are and are not concerned about what grade they will get, but how to grow in awareness about the themes presented. I mix a teaching style that builds on facts and theories (we need to know those before starting a discussion), some problem solving, review of old material and a look at practical applications. The more you come to class prepared, the more time we will have to explore what goes on in econometrics and applied work.
Required Text(s)

All readings are available online on the NYU Brightspace course site. Hard copies of some textbooks are available for consultation and semester-long loans in the Villa Ulivi Library. Please email florence.library@nyu.edu to reserve a copy. To request scans from books on reserve please fill out the Ulivi Library Book Scan Form.

Supplemental Text(s) (not required to purchase)

A useful book which we will make use of is http://www.urfie.net/read/index.html *Using R for Introductory Econometrics* by Florian Heiss: the book has a lot of interesting material which will make us proficient in the use of R for data analysis. Stock and Watson, *Introduction to Econometrics* is at a level similar to Wooldridge.

Additional Required Equipment

A pocket calculator (with the same functions as like a Casio FX-220 Plus) may be useful to have available in class. Smartphones are not allowed during exams. Please download app Kahoot! for Apple or Android.

More than that, the programming language R can be used as a pocket calculator: we will use the open source interface R-studio under Windows or Mac or Linux, to be downloaded for free at https://www.rstudio.com/products/rstudio/download/. We will provide you with cheat sheets and tutorials.

**Session 1– Sep 1st, 2022**
General introduction to the course
Wooldridge Ch. 1

**Session 2- Sep 8th, 2022**
Fundamentals of Probability
Wooldridge Appendix B

**Session 3- Sep 15th, 2022**
Fundamentals of Mathematical Statistics
Wooldridge Appendix C

*W Sep. 14 Problem Set 1 / due W Sep 21 / Fundamentals*

**Session 4– Sep. 22nd, 2022**
The Simple Regression Model
Wooldridge Ch. 2
Session 5- Sep. 29th, 2022
  Multiple Regression Analysis: Estimation
  Wooldridge Ch. 3

  W Sep. 28 Problem Set 2 / due W Oct.5 / Ch 2,3

Session 6-Oct. 6th, 2022
  Multiple Regression Analysis: Inference
  Wooldridge Ch. 4

Session 7– Oct. 13th, 2022
  Multiple Regression Analysis: OLS Asymptotics
  Wooldridge Ch. 5

  Tu Oct. 11 Problem Set 3 / due Tu Oct. 18 Ch 4,5

Midterm– October 20th, 2022
  In-class two-hour exam covering the material so far.

Session 8- Oct. 27th, 2022
  Multiple Regression Analysis: Further Issues
  Wooldridge Ch. 6

Session 9- Nov.3rd, 2022
  Multiple Regression Analysis w/ Qualitative Information
  Wooldridge Ch. 7

  W Nov 2 Problem Set 4 / due W Nov.9 / Ch 6,7

Session 10- Nov. 10th, 2022
  Heteroskedasticity
  Wooldridge Ch. 8

Session 11-Nov. 17th, 2022
  Basic Regression Analysis with Time Series Data
  Wooldridge Ch. 10
Session 12-Nov. 24th, 2022:
Pooling Cross Sections across Time: Simple Panel Data Method
Wooldridge Ch. 13

W Nov. 23 Problem Set 5 / due W Nov 30 / Ch 8,10,13

Session 13-Dec. 1st, 2022
Buffer Class: discussion of some empirical econometric results in published articles
Review Session
Wooldridge Ch. 19

NO CLASSES ON DEC. 8, 2022 (national holiday)

Final exam – Dec. 15

Final exams
Final exams must be taken at their designated times. Should there be a conflict between your final exams, please bring this to the attention of the Academics team. Final exams may not be taken early, and students should not plan to leave the site before the end of the finals period.

Suggested Co-Curricular Activities
Additional suggested optional co-curricular activities will be announced in class and/or via email by the professor/TA throughout the semester.

Your Lecturer
Giampiero M. Gallo holds a Ph.D. in Economics from the University of Pennsylvania and is a Consigliere (Judge) in the Italian Court of Audits, a judicial body in charge of preventive and subsequent controls on government expenditure. He was elected Fellow of the Society for Financial Econometrics in 2018. He was Professor of Econometrics at the School of Economics and Management at the Università di Firenze, Italy between 1991 and 2017. He taught or held positions at Queen Mary University of London, Johns Hopkins University, Bologna, LUISS, New York University, UC San Diego, Université de Paris (Panthéon-Sorbonne), UNC-Chapel Hill, Université de Genève and worked as a research fellow at the UN-UPenn Project Link, at the Central Planning Bureau in The Hague NL, at INSEE-CREST in Paris. His research interests are in financial volatility modeling, financial crises, macroeconomic forecasting, having collaborated with Nobel Laureates Clive Granger and Rob Engle and published extensively in top Journals. He was appointed Economic Advisor to Prime Minister Renzi between 2014 and 2016, and he served as President of the Italian Econometric Association (SIDE). He is married with two children. He is an avid urban biker and a collector of Le Petit Prince editions.

Academic Honesty & Plagiarism
As the University's policy on "Academic Integrity for Students at NYU" states: "At NYU, a commitment to excellence, fairness, honesty, and respect within and outside the classroom is essential to maintaining the integrity of our community. By accepting membership in this community, students take responsibility for demonstrating these values in their own conduct
and for recognizing and supporting these values in others." Students at Global Academic Centers must follow the University and school policies.

NYU takes plagiarism very seriously; penalties follow and may exceed those set out by your home school. Your lecturer may ask you to sign a declaration of authorship form, and may check your assignments by using TurnItIn or another software designed to detect offenses against academic integrity.

The presentation of another person’s words, ideas, judgment, images, or data as though they were your own, whether intentionally or unintentionally, constitutes an act of plagiarism. It is also an offense to submit work for assignments from two different courses that is substantially the same (be it oral presentations or written work). If there is an overlap of the subject of your assignment with one that you produced for another course (either in the current or any previous semester), you MUST inform your professor.

For guidelines on academic honesty, clarification of the definition of plagiarism, examples of procedures and sanctions, and resources to support proper citation, please see:

NYU Academic Integrity Policies and Guidelines
NYU Library Guides

Inclusivity Policies and Priorities

NYU’s Office of Global Programs and NYU’s global sites are committed to equity, diversity, and inclusion. In order to nurture a more inclusive global university, NYU affirms the value of sharing differing perspectives and encourages open dialogue through a variety of pedagogical approaches. Our goal is to make all students feel included and welcome in all aspects of academic life, including our syllabi, classrooms, and educational activities/spaces.

Attendance Rules on Religious Holidays

Members of any religious group may, without penalty, excuse themselves from classes when required in compliance with their religious obligations. Students who anticipate being absent due to religious observance should notify their lecturer and Office of Academic Support in writing via e-mail one week in advance. If examinations or assignment deadlines are scheduled on the day the student will be absent, the Academics Office will schedule a make-up examination or extend the deadline for assignments. Please note that an absence is only excused for the holiday but not for any days of travel that may come before and/or after the holiday. See also University Calendar Policy on Religious Holidays

Pronouns and Name Pronunciation (Albert and Zoom)

Students, staff, and faculty have the opportunity to add their pronouns, as well as the pronunciation of their names, into Albert. Students can have this information displayed to faculty, advisors, and administrators in Albert, NYU Brightspace, the NYU Home internal directory, as well as other NYU systems. Students can also opt out of having their pronouns viewed by their instructors, in case they feel more comfortable sharing their pronouns outside of the classroom. For more information on how to change this information for your Albert account, please see the Pronouns and Name Pronunciation website.

Students, staff, and faculty are also encouraged, though not required, to list their pronouns, and update their names in the name display for Zoom. For more information on how to make this change, please see the Personalizing Zoom Display Names website.
Moses Accommodations Statement
Academic accommodations are available for students with documented and registered disabilities. Please contact the Moses Center for Student Accessibility (+1 212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance. Accommodations for this course are managed through NYU Florence.

Bias Response
The New York University Bias Response Line provides a mechanism through which members of our community can share or report experiences and concerns of bias, discrimination, or harassing behavior that may occur within our community.

Experienced administrators in the Office of Equal Opportunity (OEO) receive and assess reports, and then help facilitate responses, which may include referral to another University school or unit, or investigation if warranted according to the University's existing Non-Discrimination and Anti-Harassment Policy.

The Bias Response Line is designed to enable the University to provide an open forum that helps to ensure that our community is equitable and inclusive.

To report an incident, you may do so in one of three ways:

- Online using the Web Form (link)
- Email: bias.response@nyu.edu
- Phone: 212-998-2277
- Local Telephone: 055 5007277