



Indian Institute of Management Kashipur

MBA

Applied Econometrics for Managers

Term IV, 2020-21

Credit: 1

Instructor

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Office Hours: M/W/F, 4-6 pm

Prerequisites

Managerial Economics (C), Business Statistics (C)

Course Description

This course equips students with the basic econometric tools for the successful investigation of business data. The course begins with simple linear regression and covers the more advanced topics of multiple regression, binary dependent variable, and panel data models. Students will gain hands-on experience on how to use these techniques to gain insight from actual datasets. This course will introduce students to R, a very powerful statistical software widely used in the industry. Knowledge of this software will give the students an added advantage in the job market.

Students are required to stay up-to-date with the topics being discussed, and clear any doubt as soon as they arise. Quantitative techniques take a lot of effort to learn, and students need to devote a significant amount of time and effort to develop the intuition and skill. If any student faces any problem or difficulty during the course, please discuss it with the instructor as early as possible.

As the usage of data and econometric techniques in the industry keep evolving, industry practitioners will be invited as guest faculty to provide students with an understanding of the current industry scenario.

Course Objectives

After completion of this course, we expect the students to:

1. Understand different data structures
2. Build econometric models to investigate economic and business problems
3. Distinguish among different econometric modelling techniques
4. Predict the direction of change in variables following a change in the system
5. Appreciate the notion of causality, and establish it empirically using data

Required Textbook

Wooldridge, J.M. 2013. Introductory Econometrics: A Modern Approach (5th Edition). Cengage Learning.

Pedagogy and Course Requirements

The course will be primarily taught through a combination of class discussions, presentations, and take-home assignments. Along with understanding the basic toolkit an econometrics practitioner should know about, we will also discuss some of the recent developments in the field of econometrics.

Class Discussions

The class discussion will involve the readings assigned for the class. Students are encouraged to participate in these discussions actively.

Assignments

We will provide students with problem sets at regular intervals and with specific deadlines. Each student group needs to submit one answer document, with the names of the group members mentioned. Late submissions will not be accepted. Kindly make these answer documents as professional as possible. Copy-pasting output directly from the software is not acceptable. Students should also pay close attention to how to interpret the results they get out of the statistical software. Homework should be submitted in-class only and not over emails. We may randomly pick one student group to present their results in class.

Course Project **PLO 1e, 1f, 1i**

As a requirement for this course, students need to write an original research paper (not more than 15 pages, single-spaced) using the techniques learned in the course. The focus of the research paper should be on identifying the research question, conducting a literature review, specifying the model, identifying proper empirical methods, explaining the results, and commenting on the limitations. We will divide students into different groups. Each group will be responsible for writing one research paper for this class. The number of students in each group will depend on the total class size.

Student groups are required to discuss the research idea with the instructor regularly. The instructor will be available throughout the course duration to assist and guide the students in the right direction.

At the beginning of the course, we will decide project topics with specific datasets and with specific goals for all the groups.

Course projects will be due on the day before the final examination. Late submissions will not be accepted. Student groups will also present their papers on the very last day of the course.

Grading

The course grading will follow the scheme given below:

Segment	Marks
Assignments	30
Project	20
Midterm PLO 1a, 1b	25
End term PLO 1a, 1b	25
Total	100

Students are required to take both the exams. No rescheduling request will be entertained. Late submission of the assignments and course project will not be accepted either.

Tentative Class Schedule

(subject to change at the instructor's discretion)

Session	Topic	Reading	Assignment
1	Statistics and R	Class Notes	
2	A Short History of Causal Inference	Class Notes	
3-4	Linear Regression	Wooldridge: Chapters 1-5, 7	
5-6	Building Statistical Models	Wooldridge: Chapters 6 & 19	1
7-8	Binary Dependent Variable Models	Wooldridge: Chapter 17	
9-10	Multi Category Dependent Variable Models	Class Notes	2
11	Getting Data: Web Scraping	Class Notes	3
12	Guest Visit/ Student Presentations		
Midterm			
13	Getting Data: Indian Data	Class Notes	
14-15	Panel Data	Wooldridge: Chapters 13 & 14	
16	Guest Visit/ Getting Data: Satellite Imagery		
17-18	Causal Machine Learning	Class Notes	4
19	Guest Visit		
20	Building Apps: Shiny	Class Notes	
21-22	Data-Enabled Business Strategy	Class Notes	5
23	Guest Visit		
24	Student Presentations		Project Due
Endterm			

(Additional readings, cases and articles, will be assigned as the course progresses)

Course Policies

1. **Responsibility for Course Materials:** You are responsible for all material covered in class. If you are absent, you are responsible for obtaining the information you missed.
2. **Classroom Behavior:** We expect you to participate in class activities in a mature and appropriate manner. Disruptive or otherwise unacceptable behavior will not be tolerated.
3. **Mobile and Laptop Use:** Mobiles and laptops are not permitted in the classroom. I will let you know beforehand if laptop is required for a class. In the class, you must keep your laptop down unless asked by the instructor.
4. **Academic Conduct:** All members of the academic community at IIM Kashipur are expected to practice and uphold standards of academic integrity and honesty. Academic integrity means representing oneself and one's work honestly. Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned. Following are some examples of academic dishonesty:
 - i. **Cheating on quizzes and examinations.** This includes using materials such as books and/or notes when not authorized by the instructor, copying from someone else's paper, helping someone else copy work, substituting another's work as one's own, theft of exam copies, or other forms of misconduct on exams.
 - ii. **Plagiarizing the work of others.** Plagiarism is using someone else's work or ideas without giving that person credit; by doing this, students are, in effect, claiming credit for someone else's thinking. Whether students have read or heard the information used, they must document the source of information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce information from the source word-for-word within quotation marks) and paraphrases (which digest the source of information and produce it in the student's own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense or select from another person's work, the ideas are still the other person's, and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or using information from the World Wide Web or Internet without attribution and handing it in as one's own work is plagiarism.
 - iii. **Falsifying records or providing misinformation regarding one's credentials.**
 - iv. **Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs,** including modifying computer files created by others and representing that work as one's own.
 - v. Unless they specifically indicate otherwise, instructors expect individual, unaided work on homework assignments, exams, lab reports and computer exercises, and documentation of sources when used. If instructors assign a special project other than or in addition to exams, such as a research paper, or original essay or a book review, they intend that work to be completed for that course only. Students must not submit work completed for a course taken in the

past or for a concurrent course unless they have explicit permission to do so from both faculty members.

Any academic misconduct will automatically result in a failing grade for the class and the student will be reported to the committee on academic misconduct for further disciplinary action.

4. **Attendance:** As far as I am concerned, you are an adult and it is your decision whether or not you attend class. However, your decision not to attend a class may have negative consequences for your class grade. (Please consult PGP Participants' Handbook for this purpose).
If you decide to attend a class, you must come to the class and take your seat sufficiently before the beginning of the class time. Under no circumstances you would be allowed in once the class has started. You are expected to sit through the class unless you have a prior permission from the instructor to leave the classroom before the end of the class.
5. **Late submission: Any late submission beyond the deadline (even by few seconds) will result in 0 point. Except in case of emergencies, with a doctor's note, any questions about late submission will not be entertained.**
6. **Missed exam: There is no make-up for the missed exams** unless the student has discussed and made an arrangement with the instructor for a valid reason beforehand. In all other instances, the student must produce a valid doctor's note for the day the student missed the exam. Such doctor's note must be produced in the same week the student missed the exam.
7. **Grade Discussion:** It is the student's responsibility to monitor his or her own grades and raise any questions s/he may have **within one week** of the grades assigned.
8. **Extra Credit: No Extra credit shall be given to make-up for missed quizzes, assignments, exams, project, or poor performance in the course.**

Learning Accommodations

To provide equal access to the educational programs and opportunities, IIM Kashipur is dedicated to providing appropriate accommodations to students with documented disabilities such as attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, and psychiatric disorders in order to help them achieve their academic and personal potential. These academic accommodations are provided to students at no cost.

Inclusivity Statement

IIM Kashipur believes that diversity and inclusiveness are essential to excellence in education and innovation. Our community represents a rich variety of backgrounds, experiences, demographics, and perspectives. IIM Kashipur is committed to fostering a learning environment where every individual is respected and engaged. To facilitate a dynamic and inclusive educational experience, we ask all members of our community to:

- be open to the perspectives of others
- appreciate the uniqueness of their colleagues
- take advantage of the opportunities to learn from each other
- exchange experiences, values, and beliefs
- communicate in a respectful manner
- be aware of the individuals who are marginalized and involve them
- keep confidential discussions private