UNIVERSITY OF DELHI
DELHI SCHOOL OF ECONOMICS
DEPARTMENT OF ECONOMICS

Minutes of Meeting

Subject	:	B.A. (Hons) Economics – Fourth Semester (2024)
Course	:	Econ012: INTRODUCTORY ECONOMETRICS
Date of Meeting	:	25th January 2024
Venue	:	Delhi School of Economics
Chair	:	Dr. Sourav Sarkar, Dr. Satyendra Gupta, Prof. Pami Dua

Attended by:

1 Deepika Goel, Aryabhatta College
2 Priyanka Bhatia, SRCC College
3 Sonia Goel, Ramjas College
4 Ritu Suri, Lakshmi Bai College
5 Anurag Malhotra, St. Stephen's College
6 Neha Verma, Kirori Mal College
7 Pratibha Madan, Kirori Mal College
8 Hena Oak, Miranda House
9 Gita Golani, Shyama Prasad Mukherji College
10 Reshmi Ganguly, LSR College
11 Abdul Rahim Ansari, Hindu College
12 Ankur Bhatnagar, Satyawati College
13 Paramjeet Kaur, Sri Guru Gobind Singh College of Commerce

A meeting of teachers of this course was held with a view to achieve the following aims:

- The detailed reading list for the UGCF course to be implemented in the academic session 2022-23.

- To discuss the pattern of the semester end exam

- To discuss the practical component associated with the theory and the software that will be used to teach econometric applications to the students.

The issues that were further discussed are as follows:

1. Teachers agreed upon using Essentials of Econometrics by D. N. Gujarati and D.C.Porter as the core textbook. Unit wise mapping for Gujarati is provided which will cover all theory as well as examples. It was also agreed upon that unit wise list of examples from Introduction to

Econometrics by Jeffrey M. Wooldridge, will also be provided which can be used to substantiate the theory as well as practical classes.

2. End semester exam would be of 90 marks with no specific section wise weightage and a particular question may cut across two or more topics.
3. It was also decided that in the final exam 7 questions should be asked in all with the following pattern
    - First question would be compulsory comprising of 18 marks. It will include short answer type questions which will cut across the entire syllabus.
    - Then a student will be required to attempt 4 out of 6 questions of 18 marks each.
4. Continuous assessment would consist of a 10-mark group project which would involve application of econometric concepts involving a database using an econometrics software which could be a choice between GRETL/EVIEWS/STATA/R/PYTHON/MS-EXCEL or any other suitable econometrics software. It would also involve a 20 marks end semester practical exam and a 10 marks viva voce as per the directives of University of Delhi.
5. List of some open-source database is provided at the end of these minutes with their weblinks.
6. The practical sessions with the students should aim to cover the topics as per the syllabus using datasets from either of the two or both recommended textbooks.
7. The internal assessment would comprise of 12 marks Class test, 12 marks Class test/assignment. Attendance will carry 06 marks.
8. The teachers also suggested that the following instruction should appear in the final exam: 'All intermediate calculations should be rounded off to 4 decimal places. The values provided in statistical tables should not be rounded off. All final calculations should be rounded off to two decimal places.' This instruction would help to achieve uniformity for final answer across students.
9. The practical examinations will be conducted as per the University rules.

A subcommittee was constituted to review the suggestions given during and after the meeting by the teachers. The committee consisted of the following teachers:

1 Deepika Goel, Aryabhatta College
2 Paramjeet Kaur, Sri Guru Gobind Singh College of Commerce
3 Ritu Suri, Lakshmi Bai College
4 Priyanka Bhatia, SRCC College
5 Reshmi Ganguly, LSR College
6 Abdul Rahim Ansari, Hindu College

The details of the Syllabus, Topic-wise Reading list, recommended text books are attached.

Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces a basic set of the econometric methods to conduct empirical analysis in economics and social sciences.
- The course is designed to provide the students with the basic quantitative techniques needed to undertake applied research projects.
- It also provides the base for more advanced optional courses in econometrics.
- The tools of econometrics will be useful to establish relationships among economic variables.
- This course will be taught as a combination of theory and practicals.

Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to estimate linear models using the method of ordinary least squares and make inferences about population parameters.
- They will also understand the issues of estimation arising due to misspecification of models and violations of assumptions.
- Students will also gain hands-on-experience of applying the concepts learnt to a wide range of problems using econometric software.

SYLLABUS

UNIT I: Linear Regression Model

OLS method of Estimation and Properties of estimators, Measures of Fit, Testing of Hypotheses, Prediction, Introduction to econometric software and practical application using econometric software (GRETL/EViews/ R/Stata/EXCELetc.)

UNIT II: Multiple Regression Model

OLS method of estimation and Properties of OLS estimators, Testing of Hypotheses, Measures of fit, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT III: Functional Forms and Qualitative independent variables

Nonlinear Models and Transformations of Variables, Dummy variables, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT IV: Violations of Assumptions

Consequences, Detection, and Remedies: Multicollinearity, Heteroscedasticity, Serial Correlation, practical application using econometric software (GRETL/EViews/R/Stata/EXCEL etc.)

UNIT V: Specification Bias

Model selection criteria, types of specification errors, omitted variable bias, inclusion of irrelevant variables, incorrect functional form, errors of measurement, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

UNIT No.	TOPIC	READINGS FROM CORE TEXTS
I.	***Simple Linear Regression Model*** ❖ *OLS method of Estimation and Properties of estimators, Measures of Fit, Testing of Hypotheses, Prediction*	***Gujarati*: Ch 2, Ch 3**
II.	***Multiple Linear Regression Model*** ❖ *OLS method of estimation and Properties of OLS estimators, Testing of Hypotheses, Measures of fit*	***Gujarati*: Ch 4**
III.	***Functional Forms and Qualitative independent variables*** ❖ *Nonlinear Models and Transformations of Variables, Dummy variables*	***Gujarati*: Ch 5, Ch 6 (excluding 6.7)**
IV.	***Violations of Assumptions*** ❖ *Consequences, Detection, and Remedies: Multicollinearity, Heteroscedasticity, Serial Correlation*	***Gujarati*: Ch 8,** **Ch 9 (Excluding Sec 9.5),** **Ch 10 (Excluding Sec 10.6, Appendix 10A)**
V.	***Specification Analysis*** ❖ Model selection criteria, types of specification errors, omitted variable bias, inclusion of irrelevant variables, incorrect functional form, errors of measurement.	***Gujarati*: Ch 7**

SUGGESTIVE EXAMPLES FOR PRACTICAL

UNIT No.	TOPIC	EXAMPLES FROM CORE TEXT (Includes all examples from specified chapters in Gujarati and some examples from J. Wooldridge)
I.	***Simple Linear Regression Model*** ❖ *OLS method of Estimation and Properties of estimators, Measures of Fit, Testing of Hypotheses, Prediction, Introduction to econometric software and practical application using econometric software (GRETL/EViews/ R/Stata/EXCELetc.)*	***Gujarati*: Ch 2, Ch 3** ***Wooldridge:*** ***Ch2: Example 2.1- Example 2.9 and 2.13.***
II.	***Multiple Linear Regression Model*** ❖ *OLS method of estimation and Properties of OLS estimators, Testing of Hypotheses, Measures of fit, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)*	***Gujarati*: Ch 4** ***Wooldridge:*** ***Ch 3: Examples 3.1, 3.3, 3.4,3.5*** ***Ch 4: all Examples except 4.7, 4.8 and 4.10***
III.	***Functional Forms and Qualitative independent variables*** ❖ *Nonlinear Models and Transformations of Variables, Dummy variables, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)*	***Gujarati*: Ch 5, Ch 6 (excluding 6.7)** ***Wooldridge:*** ***Ch 2: Example 2.10, 2.11, 2.12*** ***Ch 6: Example 6.2, 6.3*** ***Ch 7: Example 7.1 – Example 7.11***
IV.	***Violations of Assumptions*** ❖ *Consequences, Detection, and Remedies: Multicollinearity, Heteroscedasticity, Serial Correlation, practical application using econometric software (GRETL/EViews/R/Stata/EXCEL etc.)*	***Gujarati*: Ch 8,** **Ch 9 (Excluding Sec 9.5),** **Ch 10 (Excluding Sec 10.6, Appendix 10A)** ***Wooldridge:*** ***Ch 8: All Examples except 8.3, 8.8, 8.9.*** ***Ch 12: All Examples except 12.1, 12.7, 12.8, 12.9.***
V.	***Specification Analysis*** ❖ *Omission of a relevant variable;* ❖ *Inclusion of irrelevant variable;* ❖ *Tests of specification*	***Gujarati*: Ch 7** ***Wooldridge:*** ***Ch 3: Example 3.6***

		Ch 9: Example 9.1, 9.2, 9.5, 9.6, 9.7

Some Suggestive Open-source Database for Practical:

1. World Bank: https://data.worldbank.org/
2. International Monetary Fund Data: https://www.imf.org/en/Data
3. Reserve Bank of India database: https://dbie.rbi.org.in/#/dbie/home
4. Ministry of Statistics for Program Implementation: www.mospi.gov.in
5. Open Government Data Platform India: https://data.gov.in/

Essential Readings:

- D. N. Gujarati and D.C.Porter, Essentials of Econometrics, 4th Edition, McGraw Hill International Edition, 2010.
- Wooldridge, J. M. (2019). Introductory econometrics: A modern approach. 7th edition, Cengage learning.

Recommended Readings for Teachers:

- James H. Stock and Mark W.Watson (2019) Introduction to Econometrics, Fourth Edition,Pearsons.
- Damodar Gujarati, Econometrics by Example, 2nd edition, Palgrave Macmillan, 2014. This book is particularly useful for students to do project work.
- Maddala, G.S and Kajal Lahiri, Introduction to Econometrics, 4th edition, Wiley publication, 2009. This book is particularly useful for the discussion on the LM and Durbin's h tests for testing for autocorrelation.

25/01/24 2PM

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2 Sonia Goel - Ramjas
3. Rimpy KAUSHAL - PGDAV(D) -
4. DEEPIKA AGGARWAL - Satyawati Coll
5. Kanika Goyal - CVS
6. SHUBHI SINGH — LSR — 9650
7. Gita Gulani — SPM - 981
8 Nila Singh — Satyawati (E) —
9. Ankur Bhatnagar Satyawati
10 Preeti Mann Kamala Nehru Colleg
11. Rakesh Kumar ARSD College
12. ARUN KUMAR KAUSHAL Shaheed Bhagat Si College
13. DR. MONIKA KAUR Shri Ram College of Commerce
14 Dr. Mukesh kumar Motilal Nehru Col
15. ISHA GANGWANI RAMANUJAN COL
16 - Anurag Malhotra Sb. Stephe
17. Deepti Seth Janki Devi memo College

25/01/24 2PM

1. Dr. Deepika Goel Aryabhatta College deepika
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