BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus

INSTRUCTION DIVISION
SECOND SEMESTER 2015-2016
Course Handout (Part II)

12/01/2016

In addition to part-I (General Handout for all courses appended to the timetable) this portion gives further specific details regarding the course

Course No. : **ECON F342**
Course Title : **APPLIED ECONOMETRICS**
Instructor-in-Charge : **N.V. MURALIDHAR RAO**
Varun Chotia

1. Course Description:

This course provides an introduction to advanced estimation and econometric techniques of analysis, with particular emphasis on how these techniques can be used for the empirical testing of economic theories and/or policy prescriptions. Topics to be studied include specification, estimation, and inference in the context of models that include then extend beyond the standard linear multiple regression frameworks.

Multiple regression analysis; analysis of generalized linear and nonlinear models; instrumental variables; maximum likelihood, generalized method of moments (GMM), and two step estimation methods; simultaneous equation models; time series processes; identification and estimation of time series models; techniques for assessing model fit; forecasting; time series analysis and models of expectations; univariate time series analysis, stationary vs. non-stationary series; ARIMA, GARCH, VAR, co-integration, granger causality, error correction and limited dependent variable models; auto regressive distributed lagged variable models multivariate time series analysis; dynamic models; analysis of panel data, balanced and unbalanced panel data, mixed, fixed and random effect models.

2. Scope and objective of the course:

This is a course in applied econometrics, emphasizing the implementation of econometric techniques to analyze concrete economic problems, using data and econometric software. Though not a theoretical course, we will introduce some basic theory and concepts to motivate an appropriate use of econometric methods.

Specific Objectives:

- To explain the theory behind estimating econometric methods and provide an analytical and quantitative background in the fundamentals of econometric analysis.
- To give students opportunities to use econometric models and methods in analysis and problem solving. Students will learn how to choose the adequate method, discuss its identifying assumptions, correctly interpret its results and to translate them into economically meaningful answers

The course uses the fundamental concepts of econometric methods and applies them to data to build, estimate and interpret their own econometric models for concrete economic and financial problems.

3. Text Book (TB):

Introductory Econometrics - A Modern Approach by J Wooldridge, 5th Edition, South Western Cengage Learning, 2014.

References:

R1. Ramu Ramanathan, *Introductory Econometrics with Applications*, Fifth Edition, S-W Cengage Learning, Indian Edition 2008
R2. James H. Stock and Mark W. Watson, Introduction to Econometrics, Second Edition, Pearson Addison-Wesley, 2007
R3. Greene, W., Econometric Analysis, 7th Edition, Prentice Hall, 2011
R4. Jack Johnston and John Dinardo, *Econometric Methods*, Fourth Edition, McGraw-Hill, 1997.
R5. Intriligator, Bodkin and Hsiao, *Econometric Models, Techniques, and Applications*, Second Edition, Prentice Hall, 1996.
R6. G.S. Maddala, *Introduction to Econometrics*, Second Edition, MacMillan, 1992
R7. Judge et al., *The Theory and Practice of Econometrics*, Second Edition, Wiley, 1994
R8. Damodar. N. Gujarati and Sangeetha, Basic Econometrics, Fourth Edition, Tata McGraw-Hill Publishing Company Limited, 2007
R9. R. S. Pindyck and D.L. Rubinfeld , Econometric Models and Economic Forecasts, Third Edition, McGraw-Hill: New York, 1991
R10. H. Baltagi Badi, Econometrics, Springer, Delhi, Second Edition, 1999
R11. H. Theil, Econometrics, Wiley, New York, 1968.
R12. A. S. Goldberger, Econometric Theory, Wiley, New York, 1964.
R13. "Econometric Applications in India", Edited by K L Krishna, Oxford, New Delhi, 1997.

4. Course Plan:

Lecture No.	Learning Objectives	Topics to be covered	Reference (Book)
1	Introduction to Applied Econometrics Overview of the course.	Introduction: Scope and Coverage	Ch.1
Review of Econometric Methods:			
2-6	**REVIEW OF SRM & MRM** Simple Regression Model (SRM) : Estimation and Analysis Multiple Regression Model (MRM) : Estimation and Inference Multiple Regression: Further Issues	Overview of Concepts Learned: Simple Regression Model, Violating the Assumptions Multiple Regression: Omitted Variable Bias Dummy Variables; Heteroscedasticity; Autocorrelation Specification and Data Problems	Ch. 2, 3 and 4 Ch. 5, 6, 7, and 8 Review: Relevant Concepts
Analysis with Cross Section and Time Series Data:			
07-10	Specification and Data Issues	Modeling Nonlinear Regression Functions, Functional form Misspecification, Specification and Data Problems	Ch. 9 and Class Notes
11-17	Regression Analysis with Cross Section and Time Series Data	Issues in Using Cross Section and Time Series Data Serial Correlation and Heteroscedasticity with Time Series Regressions; Testing and Corrections; Univariate Time Series Analysis, Multivariate Time Series Stationary vs. Non-stationary Series, ARIMA, GARCH, VAR, Co-integration, Granger causality Error Correction Models	Ch. 10, 11 and 12 Ch. 18
Other Topics:			
18-20	Pooling Cross Section and Time Series Data	Pooling Independent Cross Sections across Time Two-Period Panel Data Analysis Differencing with More Than Two Time Periods	Ch 13
21-23	Advanced Panel Data Methods	Individual Effects and Fixed Effects Models Balanced and Unbalance Panel Data The Correlated Random Effects	Ch 14
24-29	Instrumental Variables (IV) Estimation and Two Stage Least Squares	The IV with a Single Regressor The General IV Regression Model; Two Stage Least Squares	Ch.15
30-35	Simultaneous Equations Models	Simultaneous Equations Models, Problems of identification and estimation, Simultaneity Bias, Simultaneous Equations Models with Time Series and Panel Data	Ch .16
36-40	Limited Dependent Variable Models and Sample Correction Models	Binary dependent and Linear Probability Model; Probit and Logit Models; Count Data, Censored and Truncated Regressions	Ch. 17

5. Evaluation Scheme:

EC No.	Evaluation Component	Duration	Weightage	Date & Time	Nature of Component
1	Mid Semester Test	90 min	30	19/3 2:00 -3:30 PM	Closed Book
2	Class Tests /Quizzes/Class Participation & Presentations	---	15	To be announced in the class	Closed Book
3	Tutorials / Problem Sheets/ Project	---	20	Friday – 8.00-8.50am	Open/Closed Book
4	Comprehensive Examination	180 min	35	16/5 FN	**Partly Open Book**

6. **Chamber Consultation hours:** **Friday 4.00-5.00 pm**
7. **Notices:** Notices would be displayed on **DEPARTMENT OF ECONOMICS & FINANCE Notice Board**
8. **Make-up:** Make-up may be given only on genuine grounds. Prior permission has to be obtained.
9. **Other Course Policy Issues:**
   - E-mail address for this course related information: nvmappliedeconometrics@gmail.com.
   - ***Course Class Coverage and details of specific topics from the chapter will be announced in the class from time to time.***
   - Assignment/Problem Sheets and Reading Assignments will be assigned periodically. They must be worked out to understand the subject. For Reading Assignments, students are expected to consult the books or specific course handout notes as advised in the classroom.The Course Project is a group project in which students form teams of four to five members and work on a practical empirical topic using modern econometric techniques. Further information and material on the empirical project will be made available as the course proceeds. You will be expected to collect and analyze a data set using the econometric methods.
   - ***No makeup examination will be given for Class Tests, Tutorials and Quizzes. Class Participation is a must.***
   - Students are expected to attend class and to arrive on time and prepared. You should read the sections in the textbook we are going to cover in class prior to following the lecture.
   - If there are problems of any nature that concern the class of which I am unaware of and which need to be addressed, please feel free to discuss this with me at any time. The main objective is to foster an environment where people who are interested in the subject matter have the opportunity to discuss their questions in a positive learning environment.

The instructor in charge reserves the right to make adjustments to this syllabus. Any change will be notified at least one week in advance. But it is your responsibility to stay informed if you do not attend all the classes.

INSTRUCTOR-IN-CHARGE
ECON F342