

Course Syllabus

National Institute of Development Administration (NIDA)
School of Development Economics

Section 1: General Information

1.	Course Code	DE 8500
	Course Title	Econometrics I
2.	Number of Credit	3 credits
3.	Program and course	Doctor of Philosophy Program in Economics Course Categories ☐ Intensive Course ☐ Basic Course ☒ Core Course ☐ Field Course ☐ Elective Course ☐ Independent Study
4.	Lecturer	Asst.Prof.Dr. Santi Chaisrisawatsuk
5.	Semester/Academic Year	1/2015
6.	Prerequisite (if any)	-
7.	Co-requisites (if any)	-
8.	Location	National Institute of Development Administration Room No. 8009, Navamindrachiraj Building, 8 th Fl.
9.	Date of course initiation or last update of course details	6 July 2015

Section 2: Purposes and Objectives

1. Course Goal
The course offers econometrics modeling and analysis as necessary tools to encounter complex economic problems and researches. It is also better equipped students for self-learning process on updated methodologies introduced and academically enables students to develop a more advanced approach when needed. In sum, the main goal is simply to enhance students' analytical skills both quantitatively and qualitatively.
2. Course Objectives
The aim of this course is to familiarize students with fundamental understanding of econometric modeling. It is important for students to have appropriate background in mathematical statistics necessary to fully utilize the fundamental econometric theory and its applications. Econometric modeling related issues shall be discussed including random variable, important of various distributions for statistical analysis, large sample theory, point and interval estimation, and hypothesis testing. Multivariate regression analysis and estimation techniques will be explained along with the underlying assumptions namely "classical regression assumptions." By relaxing the assumptions of the classical model, the problem such as multicollinearity, Heteroscedasticity, autocorrelation, and Simultaneous equation problems will be investigated. Multiple equations econometric modeling is also introduced so that it covers and provides adequate technical tools for students research interests. Students are encouraged to practice on their own with the statistic software tools to facilitate better learning in econometric applications.

Section 3: Description and Implementation

1. Course Description
Econometric methods for economic analysis. Topics include the theory and application of the LS and ML estimators of the linear single equation, nonlinear econometric methods, and structural models for cross-sectional and panel data, specification analysis, and model choice issues and analysis of limited dependent variables.

2.Semester Hours				
Lecture 45 hour (3 hour x 15 weeks)	Practice -	Self-study	Field trip/Internship	Extra Classes 45 hour
3. Office ours				
Monday 16:00-18:00 PM, Tuesday 14:30-16:30 PM, Thursday 14:30-17:00 PM or by appointment (Santi_nida@yahoo.com)				

Section 4: Learning Outcomes Development

Curriculum Mapping
Expected learning outcomes
1. Morals and Ethics 1.1 Morals and Ethics to be developed ○ (1) Awareness of values and virtues of ethics, sacrifice and honesty; ○ (2) Being disciplined, punctual and responsible regarding themselves, their profession and society; ○ (3) Having the leadership and interpersonal skill in teamwork, and also the ability to resolve conflicts and know how to priorities. ○ (4) Respect and listen to people's opinions and also respect the value the dignity of fellow human beings. ○ (5) Respect rules and regulations of their respective organizations and society; ○ (6) Ability to analyze economic impact on individual and society; ○ (7) Maintaining their respective professional ethics. ● Major Responsibility ○ Minor Responsibility 1.2 Teaching methods Setting corporate culture to instill the students with discipline, for instance, emphasizing on class attendance on time, Students must learn to work with in groups, be trained to become a group leader and/or a group's member. They are to be honest, such as not committing fraud in examination or copying someone else's homework, etc. In addition, every instructor may add moral and ethical issues in course syllabuses. 1.3 Evaluation Assessment can be performed on timeliness of the students in class attendance, submitting the assignment within the given date, involvement in activities, amount of fraudulent acts in the examinations, and responsibilities to duties as assigned. 2. Knowledge 2.1 Expected Knowledge ● (1) Have knowledge and understanding of the principles and theories of the field ● (2) Have knowledge of macroeconomic and able to use economics as tool in applying to solve economic problems and additional self – study ● (3) Able to keep on tract of academic progress and synthesis of advanced economics ● (4) Able to analyze and research on economic issues and able to present research paper ● Major Responsibility ○ Minor Responsibility 2.2 Teaching methods Use teaching methods in various ways by focusing on theoretical and practical applications that are up – to changes in economics, and according to the nature of the course.

Curriculum Mapping
Expected learning outcomes
2.3 Evaluation 1) Subtests 2) Mid – term and Final examinations 3) Evaluation of the student’s report 4) Qualification examination 5) Dissertation proposal examination 6) Dissertation final examination 3. Intellectual Skills 3.1 Learning Results on Intellectual Skills Students need to develop intellectual skills along with ethics and knowledge of the economics. While teaching, the lecturer has to focus on students’ ability to reason causes of problems and to solve the problems. The students must have following qualifications in order to achieve the intellectual skills: ● (1) Systematic and critical thinking ● (2) Ability to detect, interpret, and evaluate information on economics to solve problems creatively ● (3) Able to collect, analyze, and summarize the issues and needs ● (4) Able to apply knowledge and skills to solve problems in economics appropriately Intellectual skill on this regard can be assessed by testing out the students’ concept of problem solving and how to solve problems by applying the knowledge learned ● Major Responsibility ○ Minor Responsibility 3.2 Teaching methods 1) Case study of advanced economic and current issues 2) Discussion 3) Independent study 3.3 Evaluation Evaluation of the learning results can be done based on actual works and performance of the students i.e. evaluation on the presentation in the class, test or interview. 4. Interpersonal skills and responsibility 4.1 Interpersonal skills and responsibility to be developed Incorporated learning related with the following qualifications of the students into course: ○ (1) Ability to communication foreign language effectively ○ (2) Ability to assist and facilitate problem – solving both as a team leader and a team member ○ (3) Ability to use the knowledge learned with the society appropriately ○ (4) Responsible for personal actions and work within the group ○ (5) Able to propose ways to resolve a situation, as well as present the position appropriately to both themselves and the group ○ (6) Responsible for professional learning development continuously ● Major Responsibility ○ Minor Responsibility 4.2 Teaching methods 1) Have leadership 2) Able to work well with others 3) Responsible for the work assigned 4) Adaptability to the situation and organization culture at work place 5) Have good interpersonal skills with colleagues in organization and the general public

Curriculum Mapping
Expected learning outcomes
4.3 Evaluation Evaluate the behavior and performance of students in group presentation in class, and observation of behavior manifested in the activities. 5. Numeric analysis, communication and information technology skills 5.1 Numeric analysis, communication and information technology skills to be developed ● (1) Have the skills to use necessary tools available to work with the computer ● (2) Can suggest the solution using mathematics, econometrics to related problems creatively ● (3) Able to communicate effectively both orally and in writing as well as selecting appropriate presentation media ● (4) Able to use information and communication technologies appropriately The learning outcome may be assessed during courses by having the students solve problems, analyze effectiveness of the solutions, and to introduce the concepts of the solutions, and also academic discussion between the lecturer and the students ● Major Responsibility ○ Minor Responsibility 5.2 Teaching methods Arrange learning activities in the course for students to analyze various scenarios and realistic situations so that they can offer appropriate solutions, learn techniques in applying information technology in a variety of situations. 5.3 Evaluation 1) Evaluate from student presentations that use information technology tools, or mathematics and related statistics 2) Evaluate the ability to explain the reasons on using various tools and from discussion of case studies that were presented to classes

Section 5: Teaching and Evaluation Plan

1. Teaching Plan

Items/content	Number of hours	Lecturer
Week 1 Introduction	3	Assist. Prof. Santi Chaisrisawatsuk
Week 2 Probability Theory, Random Variables (Discrete and Continuous)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 3 Probability Functions, Density Functions and Distribution Functions	3	Assist. Prof. Santi Chaisrisawatsuk
Week 4 Theory of convergence, Central Limit Theorem and Law of large number (1)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 5 Theory of convergence, Central Limit Theorem and Law of large number (2)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 6 Multiple Regression Analysis (1) – Least Squares Method (LS) and Maximum Likelihood Estimation (ML)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 7 Multiple Regression Analysis (2)	3	Assist. Prof. Santi Chaisrisawatsuk

Items/content	Number of hours	Lecturer
Week 8 Multicollinearity, Heteroscedasticity, and Autocorrelation (1)	3	Assist. Prof. Santi Chaisrisawatsuk
Midterm Exam		
Week 9 Multicollinearity, Heteroscedasticity, and Autocorrelation (2) – GLS, WLS included	3	Assist. Prof. Santi Chaisrisawatsuk
Week 10 Regression on Dummy Variables	3	Assist. Prof. Santi Chaisrisawatsuk
Week 11 Simultaneous Equation Models	3	Assist. Prof. Santi Chaisrisawatsuk
Week 12 Identification Problem, Instrumental variables	3	Assist. Prof. Santi Chaisrisawatsuk
Week 13 Limited Information Approaches V.S. Full Information Approaches - Indirect Least Squares (ILS), Two-stages Least Squares (2SLS), Three-stage Least Squares (3SLS) (1)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 14 Limited Information Approaches V.S. Full Information Approaches - Indirect Least Squares (ILS), Two-stages Least Squares (2SLS), Three-stage Least Squares (3SLS) (2)	3	Assist. Prof. Santi Chaisrisawatsuk
Week 15 Systems of Regression Equations	3	Assist. Prof. Santi Chaisrisawatsuk
Final Exam		

2. Instructional Media

- OHP media

3. Evaluation Plan

3.1 Assessments

Students are expected to spend additional hours in private study and practice.

The grading system for this course is distributed as follows:

Midterm examination	30%
Final examination	40%
Assignments	30%

Section 6: Teaching Materials

6.1 Required textbooks and materials

1. - Greene, William H., **Econometric Analysis**, Prentice-Hall Inc., 2000.
- Enders, Walter, **Applied Econometric Time Series**, 2nd edition, John Wiley & Sons, Inc., 2004.

6.2 Other important materials and information

2. -

6.3 Other recommended materials and information

3. - Pindyck, Robert S., **Econometric Models and Economic Forecasts**, McGraw-Hill Inc., 1998.
- Studenmund, A. H., **Using Econometrics: A Practical Guide**, Addison-Wesley Inc., 1997.
- Wooldridge, Jeffrey M., **Introductory Econometrics: A Modern Approach**, South-Western College Publishing, 2000.

	- Griffiths, William E., R. Carter Hill and George G. Judge, Learning and Practicing Econometrics, John Wiley & Sons, Inc., 1993. - Gujarati, Damodar N., Basic Econometrics, McGraw-Hill Inc., 1998. - Dharmendra, Dhakal, Magda Kandil, Sharma C. Subhash and Paul B. Trescott, "Determinants of the Inflation Rate in the United States: A VAR Investigation," <i>The Quarterly Review of Economics and Finance</i>, Spring 1994, 34(1), pp. 95-112. - Fair, Ray C., "Bootstrapping Macroeconometric Models," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2003, 7(4). - Ramalho, Joaquim J.S., "Small Sample Bias of Alternative Estimation Methods for Moment Condition Models: Monte Carlo Evidence for Covariance Structure," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2005, 9(1). - Hristova, Daniela, "Maximum Likelihood Estimation of a Unit Root Bilinear Model with an Application to Prices," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2005, 9(1). - Kiviet, Jan F. and Garry D. A. Phillips, "Moment Approximation for Least-Squares Estimators in Dynamic Regression Models with a Unit Root," <i>Econometrics Journal</i>, 2005, 8, pp. 115-142. - Kapetanios, George, "Bootstrap Neural Network Cointegration Tests Against Nonlinear Alternative Hypotheses," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2003, 7(2). - Park, Joon Y. and Yoon-Jae Whang, "A Test of the Martingale Hypothesis," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2005, 9(2). - Ivanov, Ventzislav and Lutz Kilian, "A Practitioner's Guide to Lag Order Selection For VAR Impulse Response Analysis," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2005, 9(1). - Jagric Timotej, "A Nonlinear Approach to Forecasting with Leading Economic Indicators," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2003, 7(2). - Hurvich, Clifford M., Eric Moulines, and Philippe Soulier, "Estimating Long Memory in Volatility," <i>Econometrica</i>, July 2005, 73(4), pp. 1283-1328. - Smallwood, Aaron D., "Joint Tests for Non-linearity and Long Memory: The Case of Purchasing Power Parity," <i>Studies in Nonlinear Dynamics & Econometrics</i>, 2005, 9(2).
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Section 7: Course Evaluation and Improvement

7.1 Evaluation Strategies on course effectiveness by students	
1.	Opinions on the course and the lecturer
2.	Class discussion between the lecturers and students
3.	Students' suggestions
7.2 Teaching evaluation strategies	
1.	Self evaluation
2.	Observation by teaching team
3.	Examination results/Learning outcomes
4.	Review of learning outcomes evaluation
7.3 Teaching Improvement	
1.	Improve teaching regarding students' suggestions, teaching evaluation results, and problems
2.	Classroom research
3.	Course detail improvement
4.	Meeting to develop teaching and learning
7.4 Review of students' academic performance	
1.	Form a committee to review students' learning outcomes evaluation
2.	Review students' scores and/or assignments

7.5 Course review and improvement plan	
1.	The evaluation results from item 1 and teaching evaluation from item 2 can be used to improve the course and teaching and learning methods
2.	Arrange meetings/seminars for lecturers to review and improve the course
3.	Improve the course annually regarding evaluation results