**UNIVERSITY OF 1BADAN**

*Course Lecturer:*

Dr. Noah Olasehinde

**DEPARTMENT OF ECONOMICS**

**DISTANCE LEARNING CENTRE**

**2014/2015 SESSION**

**ECO 441: INTRODUCTORY ECONOMETRICS II**

**Course Description**

This course is designed primarily for students who took the introduction to econometrics course at 300 level. The aim of the course is to build upon the students’ existing knowledge of econometrics and essentially, to help the students develop a working knowledge of econometrics and its applications to real-world economic data. The course will cover a range of topics from simple and multivariate regression methods including hypothesis testing and statistical inferences, time series models, discrete choice models to simultaneous equation models. By the end of this semester, students should be able to read and understand basic analyses in empirical studies. More importantly, students should be able to work on real economic data, specify the appropriate regression model correctly and apply relevant estimation techniques to produce results with policy implications.

**Course Structure**

The course is organized in a logical structure with relevant topics that allow the lectures to focus on the important concepts and methods of econometrics, and to provide relevant examples to which the concepts and methods are applied. Thus, the course is structured into five sections which are as follows:

Section I: Extension of Basic Theory

Section II: Time Series Models

Section III: Qualitative Response Models

Section IV: Simultaneous Equation Models

**Course Assessment**

The assessment for this course is a combination of continuous assessment and final examinations. The continuous assessment will consist of an applied econometric project/assignment which will account for 30% of the final grade. Tests will also be given to facilitate learning of the more challenging areas of the course. A final examination will be written at the end of the course and this will cover 70%.

**Reference Texts**

Asteriou, D. and Hall, S. G. (2007). *Applied Econometrics*. 2nd Edition, Palgrave Macmillan, New York.

Stock, J. K. and Watson, M. W. (2007). *Introduction to Econometrics*. 2nd Edition, Palgrave Macmillan, New York.

Gujarati, D. N. (2004). *Basic Econometrics*. McGraw-Hill, London.

Maddala, G. S. (1992). *Introduction to Econometrics*. 2nd Edition, John Wiley & Sons, Inc.

Verbeek, M. A. (2008). *A Guide to Modern Econometrics*. 3rd Edition, John Wiley & Sons, Inc.

(Any of the above texts would suffice but the first is preferred)

**Course Outline**

Section I: Extension of Basic Theory

1. An Overview of Econometrics Methodology
2. Specification and Estimation of LRM
   1. Linear Regression Models (LRM): Single Equation and Multiple Regression Models
   2. The Ordinary Least Square (OLS) method of estimation and Properties of the OLS Estimators
   3. Assumptions underlying the use of LRM
3. Classical Statistical Inference and Validation of Results
   1. Hypothesis Testing
   2. Testing the Statistical Significance of one or more coefficients
   3. Diagnostic Checking, Model Selection and Specification testing
4. Special cases of LRM:
   1. Dummy Variable Regression Models
   2. Various Functional Forms of LRM
5. Violations of the assumptions of LRM and possible remedies:
   1. Heteroscedasticity
   2. Autocorrelation
   3. Multicollinearity

Section II: Time Series Models

1. Stochastic Processes
   1. Stationary Stochastic Processes
   2. Non-Stationary Stochastic Processes
   3. Tests of Stationarity

* Graphical Analysis
* Autocorrelation Function (ACF) and Correlogram

1. Univariate Time-Series Analysis
   1. The Characteristics of Univariate Time Series Models
   2. Univariate Time Series Analysis

* Autoregressive (AR) Process
* Moving Average (MA) Process
* ARMA process
  1. The Box-Jenkins Approach to Time-Series Model Building

Section III: Qualitative Response Models

1. Discrete Choice Models
   1. The Linear Probability Model
   2. The Probit Model
   3. The Logit Model

Section IV: Simultaneous Equation Models (SEM)

1. SEM
   1. Specification of SEM
   2. The Identification Problem
   3. Estimation of SEM