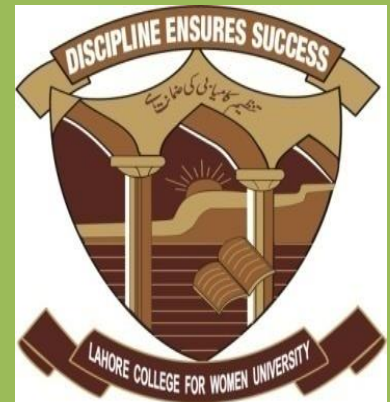


Scheme of Studies

MS Economics

Session 2021-2023 and Onwards

Lahore College for Women University



Department of Economics
Lahore College for Women
University, Lahore



LAHORE COLLEGE FOR WOMEN UNIVERSITY
DEPARTMENT OF ECONOMICS Tel: # 9203801-9 (Ext: 271)

Scheme of Studies

MS Economics

Session 2021-2023 and Onwards

1. Program Objectives

The course is designed to train students in the use of analytic and quantitative methods in examining economic issues, and to provide research training of the level required to proceed to a PhD program in Economics. For those who do not wish to progress to a doctorate the MPhil combines study of core subjects to a high level, opportunity to study specialized field subjects, and the experience of writing a dissertation, providing an excellent foundation for a career as a professional economist. These advantages fully justify the additional effort and costs involved in a two-year program.

The specific objective of M.Phil. degree is to provide a solid foundation in contemporary econometric theory, and the expertise to apply that theory in the analysis and interpretation of economic data.

2. Learning Outcomes

- To formulate researchable economics questions in an independent manner and to analyze information through the application of social science research methodologies.
- To locate and evaluate in a critical manner relevant sources for a research project.
- To understand the importance of teamwork and group dynamics in achieving organizational goals and demonstrate ability to work effectively in teams.
- To conduct research and build skills in a field of specialization in economics.
- To develop research projects and contribute to research activities of a team.
- To disseminate results in a clear and coherent manner to other researchers, employers, coworkers, and to the general public.
- To critically evaluate research reports or scholarly articles written by others.
- To draw policy implications or to make informed decisions based on research findings.
- Acquire awareness of global diverse perspectives and understand the theory, its application, and challenges of global economic structure.

3. Structure of M.S. Program

- The Master of Philosophy in Economics is of 2-years duration, spread over 4 regular semesters, and consisting of 30 credit hours after completion of B.S. (Hons) in economics/ equivalent degree.
- The M.S. degree would require successful completion of a minimum of 8 courses (3 credit hours each). However, a student must complete 12 compulsory credit hours in economics.
- A dissertation of 6 hours credit based on research must be completed at the end of 4th semester.

4. Layout for M.S. (2-Years, 4-Semesters Program)

Course Code	Course Title	Credit hrs.
Core Courses		
ECO -501	Microeconomics Analysis	3(3-0)
ECO -502	Macroeconomics Analysis	3(3-0)
ECO -503	Econometrics Theory and Methods	3(3-0)
ECO -504	Research Methods in Economics	3(3-0)
Elective Courses		
ECO -505	Applied Econometrics	3(3-0)
ECO -506	Contemporary Issues in Economic Development	3(3-0)
ECO-507	Topics in International Trade	3(3-0)
ECO -508	Topics in Monetary Economics and Application	3(3-0)
ECO -509	Topics in Environmental and Natural Resource Economics	3(3-0)
ECO -510	Topics in Labor Economics	3(3-0)
ECO -511	Topics in Agricultural Economics	3(3-0)
ECO -512	Economic Growth Models	3(3-0)
ECO -513	Topics in Public Sector Economics	3(3-0)
ECO -514	Issues in health Economics	3(3-0)
ECO -515	Real Analysis	3(3-0)
ECO -516	Topics in Islamic Economics	3(3-0)
ECO -517	Topics in Economics of Happiness and Well-being	3(3-0)

Other Mandatory Requirement for MS		
ECO -601	Seminar (Research)	2(0-2)
ECO-602	Research Thesis	6(0-6)

Semester Breakup

Semester-I		
Course Code	Course Title	Credit Hours
ECO-501	Microeconomic Analysis	3(3-0)
ECO-503	Econometric Theory and Methods	3(3-0)
ECO-	Elective-I*	3(3-0)
ECO-	Elective-II*	3(3-0)
Total credit hours		12
Semester-II		
Course Code	Course Title	Credit Hours
ECO-502	Macroeconomic Analysis	3(3-0)
ECO-504	Research Methods in Economics	3(3-0)
ECO-	Elective-III*	3(3-0)
ECO-	Elective-IV*	3(3-0)
Total credit hours		12
Semester-III & IV		
Course Code	Course Title	Credit Hours
ECO-602	Seminar (Research)	2(0-2)
ECO-603	Thesis	12(0-12)
Total Credit hours		14

Note: * The course code will be in accordance to the course chosen from the annexure. The courses will be offered depending on the availability of the faculty expertise and the number of students. Change of courses between semesters may be made if needed.

Total Credit Hours = 12+12+14 = 38

Microeconomic Analysis

Course Code: Eco-501

Credit Hours: 3(3-0)

Course Objectives

This course is designed with special focus on analytical tools of modern microeconomics especially uncertainty, game theory, information asymmetry, externalities and public goods. The objective of this course is to well equip the students with the advanced techniques and practical application of microeconomic analysis.

Learning Outcomes

After accomplishment of this course students are expected to be able to:

- understand the important concepts and quantitative tools in microeconomic theory.
- comprehend the behavior of economic agents (consumers and producers) in the context of game theoretical framework, asymmetric information, public goods, and externalities.
- shape and solve the microeconomic models for various real-life issues.
- utilize quantitative tools of microeconomics to analyze the research problems.

Course Contents

1. Choice and Demand
 - i. Consumer Behavior
 - Utility function
 - Indirect utility function
 - Expenditure function
 - Uncompensated and compensated demand functions
 - Demand Elasticities
 - Consumer surplus
 - Revealed preference
 - Household production model
 - ii. Choice under Uncertainty
 - Random variable and probability density function
 - Fair gamble and the expected utility hypothesis
 - The Von Neumann-Morgenstern theorem
 - Risk aversion
 - Measures of risk aversion
 - Risk aversion and fair gambles
 - Risk aversion and Insurance
 - The State preference approach to choice under uncertainty
2. Production and Supply
 - Production functions
 - The elasticity of substitution
 - Cost functions

- Shephard's lemma and elasticity of Substitution
- 3. Markets
 - i. Competitive Markets
 - Short-run Analysis
 - Long-run Analysis
 - ii. Monopoly
 - Profit maximization and output choices
 - Price Discrimination
 - iii. Oligopoly and Monopolistic Competition (Differentiated products)
 - Cournot model of oligopoly
 - Chamberlin's version of monopolistic competition
 - The Hotelling model of spatial duopoly
 - Oligopoly and advertising
 - Application of game theory to oligopoly
- 4. Market Failure
 - i. Asymmetric Information
 - Principal-Agent model
 - Hidden-action model
 - Hidden-Type Model
 - Market for Lemons
 - ii. Externalities and Public Goods

Recommended Books

1. Jehle, Geoffrey A. & Reny, Philip J. (2019). Advanced Microeconomic Theory, 5th Edition, Princeton.
2. Mas-Colell, MD. Whinston & JR. Green (1995). Microeconomic Theory, Oxford University Press.
3. Machina, M. J. (1987). Choice Under Uncertainty: Problems Solved and Unsolved. The Journal of Economic Perspectives, Vol. 1, No. 1, 121-154.
4. Snyder, Christopher & Nicholson, Walter (2012). Microeconomic Theory: Basic Principles and Extensions, 11th Edition, Cengage Learning.
5. Silberberg, E. & Suen, W. (20). The Structure of Economics: A Mathematical Analysis, 3rd Edition, McGraw-Hill.
6. Varian, R. Hall (1992). Microeconomic Analysis, 3rd Edition, Norton.
7. Varian, R. Hall (2017). Intermediate Microeconomics : A modern Approach, 10th Edition, Norton.
8. Friedman, W. James (1983). Oligopoly Theory, Cambridge University Press.

Macroeconomics Analysis

Course Code: Eco-502

Credit hours: 3(3-0)

Course Objectives

This course is planned to provide knowledge of contemporary, advanced macroeconomic theory. It aims to provide students with a detailed understanding of some fundamental models in macroeconomics. A goal of this course is to teach how to apply this information to study real world economic problems.

Learning Outcomes

After successful completion of this course students are expected to:

- analyze and evaluate the most fundamental workhorse models in macroeconomics.
- learn the quantitative tools of analysis in macroeconomics.
- apply these tools to analyze practical questions in macroeconomics.
- appraise advanced macroeconomic literature in a wide variety of relevant policy issues.

Course Contents

1 Economic Growth and Economic Development: The Questions

- Cross-Country Income Differences,
- Income and Welfare,
- Economic Growth and Income Differences,
- Origins of Today's Income Differences and World Economic Growth,
- Conditional Convergence,
- Correlates of Economic Growth,
- From Correlates to Fundamental Causes.

2. The Solow Growth Model

- The Balanced Growth Path,
- The Impact of a Change in the Saving Rate,
- The Impact on Consumption,
- The Speed of Convergence.

3. Infinite-Horizon and Overlapping Generations Models (Neoclassical growth model)

- The Basics of The Ramsay –Cass-Koopmans Model,
- Diamond Model,
- New Growth Theory R&D Models,
- Growth Model Including Human Capital.

4.Real Business Cycle Theory

- An Overview of Business Cycle Research,
- A Baseline Real Business Cycle Model,
- Real “Extensions”,
- Nominal Rigidity.

5. Consumption

- Consumption under Certainty: The Permanent-Income Hypothesis,
- Empirical Applications,
- Consumption Under Uncertainty: The Random Walk Hypothesis,
- Consumption and Risky Assets.

6. Stabilization Policies

- Optimal Stabilization policies.

Recommended Books

- David Romer. Advanced Macroeconomics, McGraw Hill, New York (latest edition).
- Acemoglu, Daron. Introduction to Modern Economic Growth, Princeton University Press. (latest edition).
- William Scarth, Macroeconomics: The Development of Modern Methods for Policy Analysis. (latest edition).
- James K. Glabaith and William Darity, Macroeconomics, Netherlands. (latest edition).

Econometric Theory and Methods

Course Code: Eco-503

Credit hours: 3(3-0)

Course Objectives

1. Develop understanding about the application of econometrics
2. Enable students to integrate the economic phenomena
3. Conduct independent analysis of data under real world economic situations empirically
4. Enable students to read and appraise econometric analysis with respect to choice of model, estimation method and interpretation
5. Enable students to give policy guidelines on the basis of empirical estimation

Learning Outcomes

After completing this course, students should have developed a range of skills enabling them to understand advance econometric techniques and use those techniques to estimate complicated models. By the end of this course, students should be able to:

1. UNDERSTAND advance econometric techniques and their appropriate use
2. APPLY the concepts to integrate the economic phenomena and be able to make a choice of appropriate model and estimation technique.
3. ESTIMATE and INTERPRET econometric models
4. CONDUCT independent empirical analysis of data from real world economic situations
5. DEFINE and CALCULATE advance topics such as degree of risk averseness, efficiency, etc.
6. EXPLAIN the results and give policy guidelines on the basis of empirical estimations.

Course Contents

1. General Linear Regression Model

Basic structure and assumptions, Estimation of single equation models using least square, Algebraic aspects of the least square solution, Partitioned regression and partial regression, Partial regression and partial correlation coefficients, Goodness of fit, Linearly transformed regression.

2. Finite Sample Properties of the Least Squares Estimator

Unbiased estimation, Biased caused by omission of relevant variables and inclusion of irrelevant variables, Variance of least square estimators, The Gauss Markov Theorem.

3.Hypothesis Testing and Model Selection

Restrictions and hypothesis, Nested models, Testing of hypothesis about a coefficient, Testing restrictions using fit of the regression, Testing the significance of the regression.

3. Data Problems

i. Multicollinearity

Missing values and data imputation, Measurement error, Outliers and influential observations.

ii. Heteroscedasticity

Ordinary least square estimation, Testing for Heteroscedasticity, Estimation in the presence of Heteroscedasticity, Feasible Generalized least square.

iii. Autocorrelation

Least square estimation, Testing for Autocorrelation, Estimation in the presence of Autocorrelation, Autoregressive conditional Heteroscedasticity, Generalized autoregressive conditional Heteroscedasticity.

4.Maximum Likelihood Estimation

The likelihood function and identification of parameters, Efficient estimation: the principal of maximum likelihood, Properties of maximum likelihood estimators, Hypothesis and specification tests and fit measures.

5. Functional Form and Structural Change

Dummy variable and dummy trap, Threshold effects and categorical variables, Treatment effects and difference in differences regression.

6. Non-Linear Models

Introduction to nonlinear regression model, Transformation to a linear model, Non- linear Estimation. Taylor Approximation, Direct Search methods, Iterative process Generalized least square.

7. Systems of Equations

Endogeneity and instrumental variable estimation, Seemingly unrelated regressions model, Simultaneous equations models, Instrumental variable estimator, Two stage least square, Three Stage Least square, Method of moment, Generalized method of moment.

8. Structural Regression Models

Structural Regression Models, Mediation, Moderation, MIMIC Modeling, Bootstrapping as an aid to non-normal data.

9. Models for Panel Data

Pooled Regressions, Fixed effects, Random effects.

Recommended books

- Greene, W.H. *Econometric Analysis*, Pearson Education, Inc.(latest edition)
- Johnston, J. and J. DiNardo *Econometric Methods*, McGraw-Hill/Irwin (latest edition)
- Kennedy, P. *A Guide to Econometrics*, John Wiley & Sons, Inc. (latest edition)
- Verbeek, M. *A Guide to Modern Econometrics*, John Wiley & Sons (latest edition)
- Wooldridge, J.M. *Econometric Analysis of Cross Section and Panel Data*, MIT, Press (latest edition)
- Stock and Watson. (2020). *Introduction to Econometrics*, latest edition, Pearson Education.

Research Methods in Economics

Course Code: Eco-504

Credit hours: 3(3-0)

Course Objectives

By the end of this course following Bloom's Taxonomy the students shall be able:

1. To understand the research process followed in economics.
2. To apply research techniques for analysis of economic problems.
3. To familiarize the students to identify the researchable issues in the economy.
4. To equip the students with basic research techniques of data collection, analysis, writing and presentation.

Learning Outcomes

By studying this course, the students shall be able to:

1. IDENTIFY economic problems and ANALYZE them by using scientific process of empirical inquiry in economics discipline.
2. Possess UNDERSTANDING about conducting research in economics based on certain economic issue.
3. EVALUATE the research question; explore the strengths of various methods, and techniques to address the stated problem.
4. DEMONSTRATE the application of different computational techniques to analyze the data.

Course Contents

1. Introduction

• Meaning and Importance of Research, • Research Philosophies: Positivism and Normativism, • Motivation and Significance of Research • Research Methods versus Methodology • Characteristics of Scientific Research, • Objectives of Research.

2. Defining the Research Problem

• What is a Research Problem? • Selecting the Problem • Necessity of Defining the Problem

3. Research types and designs

• Research Types; • Types of Research: Theoretical, Empirical and Pragmatic Research Research designs; • Technique Involved in Defining a Problem • Important Concepts Relating to Research Design • Different Research Designs • Basic Principles of Experimental Designs

4. Literature Review

• Formats/ steps of Literature review. • Identify key terms • Locate literature • Critically evaluate and select relevant literature • Organize the literature • Write the literature Review • Summary of each paper vs. review of many papers under one theme • Gap finding • Issues related to make the research gap

5. Sampling

- Determining the sample size • Handling the issues of selecting the representative sample

6. Methods of Data Collection

- Questionnaire development • Preparation of Questionnaire based on research issue
- Pilot testing, • Survey, • Data cleaning. • Issues related to cross sectional, time series, panel data

7. Analysis of Data

- Applying Suitable Statistical and Econometric Techniques, • Parametric and Non-Parametric Analysis, • Testing the Relationship between Economic Variables. • Quantifying the Relationship between Variables.

8. Research Proposal and Thesis /Report Writings

- Importance of Research Proposal, • Characteristics of Research Proposal, • Steps of writing thesis/ report writing, : • Abstract, • Introduction, • Identification/ Statement of the Problem, • Literature Review • Framework of Analysis/methodology, • Estimation techniques, • Results and discussion, and • Conclusion. • References; APA, AMA, MLA and other formats • Ethical considerations; Plagiarism and its outcomes to researchers.

Recommended Books

1. Kothari, C.R.(2017),Research Methodology: -Methods and Techniques, New Delhi, Wiley Eastern Limited.
2. Dawson,Catherine (2020), Practical Research Methods, New Delhi, UBS Publishers Distributors
3. Kumar, Ranjit (2005), Research Methodology-A Step-by- Guide for Beginners, (latest.ed.),Singapore, Pearson Education.
4. Etheridge Don E. (2004) Research Methodology in Applied Economics: Organizing, planning and Conducting Economic Research, latest ed. Blackwell Publishing .
5. Creswell, J. W. (2005), Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, Prentice-Hall publishing Co. Inc. NJ.

Applied Econometrics

Course Code: Eco-505

Semester: II

Course Objectives

The objective of this course is to well equip the students with the econometric techniques. This course will help the students to rigorously understand issues in connecting data, statistics and economic theory. The emphasis will be on applications of the empirical modeling techniques to real world problems through discussions of policy relevant issues.

Learning Outcomes

After accomplishment of this course students are expected to:

- understand and apply the advanced econometric techniques to handle time series, cross-sectional, and pooled or panel data.
- Acquire the skill to apprehend and utilize the discrete respond models and duration analysis.
- demonstrate the ability to select and use the appropriate quantitative methods to analyze different types of data.

Course Contents

1. Stochastic process and its main characteristics

Stochastic process, Time series as a discrete stochastic process, White Noise Stochastic process, Constant plus white noise, Conventional linear trend, Random Walk, Random Walk with Drift, Random Walk with drift and linear trend, Main characteristics of stochastic processes, Solution of stochastic difference equations, Lag operator

2. Univariate Forecasting

Stochastic Difference Equation Models, ARMA Models, Stationarity, Stationarity Restrictions for an ARMA (p, q) Model, The Autocorrelation Function, The Partial Autocorrelation Function, Sample Autocorrelations of Stationary Series, Box–Jenkins Model Selection, Properties of Forecasts, Seasonality, Parameter Instability and Structural Change, Combining Forecasts

3. Modeling Volatility

Economic Time Series: The Stylized Facts, ARCH and GARCH Processes, Examples of GARCH Models, GARCH Model of Risk, The ARCH-M Model, Additional Properties of GARCH Processes, Maximum Likelihood Estimation of GARCH Models, Other Models of Conditional Variance, Multivariate GARCH, Volatility Impulse Responses

4. Models with trend

Deterministic and Stochastic Trends, Removing the Trend, Unit Roots and Regression Residuals, The Monte Carlo Method, Dickey–Fuller Tests, Examples of the Dickey–Fuller Test, Extensions of the Dickey–Fuller Test, Structural Change, Seasonal unit root, Power

and the Deterministic Regressors, Tests with More Power, Trends and Univariate Decompositions

5. Multi Equation Time series Models

Intervention Analysis, ADLs and Transfer Functions, Limits to Structural Multivariate Estimation, Introduction to VAR Analysis, Estimation and Identification, The Impulse Response Function, Testing Hypotheses, Structural VARs, Over identified Systems, The Blanchard–Quah Decomposition

6. Cointegration Error Correction and Regressive dynamic models

Linear Combinations of Integrated Variables, Cointegration and Common Trends, Cointegration and Error Correction, Testing for Cointegration: The Engle–Granger Methodology, Illustrating the Engle–Granger Methodology, Cointegration and Purchasing Power Parity, Characteristic Roots, Rank, and Cointegration, Hypothesis Testing, Illustrating the Johansen Methodology, Error-Correction and ADL Tests, Comparing the Three Methods, Regressive dynamic models. Autoregressive models with distributed lags (ADL).

7. Non Linear Models and Breaks

Linear Versus Nonlinear Adjustment, Simple Extensions of the ARMA Model, Testing for Nonlinearity, Threshold Autoregressive Models, Extensions of the TAR Model, Three Threshold Models, Smooth Transition Models, Other Regime Switching Models, Estimates of STAR Models, Generalized Impulse Responses and Forecasting

8. Non-Stationary Panel data

Panel unit-root tests, The Levin and Lin (LL) test, The Im, Pesaran and Shin (IPS) test, the Maddala and Wu (MW) test, Panel Cointegration tests: Introduction, The Kao test, The McCoskey and Kao test, The Pedroni tests, The Larsson et al. test, Dynamic panel Model

Recommended Books

1. Walter Enders (latest edition), Applied Econometrics Time Series, Third Edition, Wiley.
2. Wooldridge, Jeffrey (latest edition). Econometric Analysis of Cross Section and Panel Data, MIT Press.
3. Asteriou, Dimitrios & Hall G. Stephen (latest edition), Applied Econometrics, Second Edition, Palgrave Macmillan.
4. Wooldridge, Jeffrey (latest edition). Introductory Econometric: A modern Approach, Fifth Edition, Cengage Learning .
5. Scheiber, Noam. “Freaks and Geeks: How Freakonomics is Ruining the Dismal Science.” The New Republic, 2007, April 2, 27–31.
6. DiNardo, John and Jorn-Steffen Pischke. “The Returns to Computer Use Revisited: Have Pencils Changed the Wage Structure Too?” Quarterly Journal of Economics, 1997, 112, 291– 303.

Contemporary Issues in Economic Development

Course Code: Eco-506

Credit hours: 3(3-0)

Course objectives

This course aims to provide students with a framework for examining contemporary issues and challenges faced by the countries during development process. It will enhance their understanding of the main economic models and key indicators from which development policies are derived. It will also develop their understanding of policy issues especially in the context of developing economies.

Learning outcomes

At the end of this course students should be able to:

- recall the relevant empirical evidence on the important contemporary issues related to economic development.
- discuss the major policy issues and problems in developing countries.
- apply economic theory to the analysis of theoretical, policy and empirical issues important in the economics of development.

Course Contents

1. Introduction: What is economic development?
 - Lewis “The Roots of Development Theory”(Handbook of Development Economics, Vol.1(1988)
 - Moshe Syrquin” Structural Change and Development” in Amitava Krishna Dutt and J.Ros International Handbook of Development Economics, Vol.1 (2008)
2. Historical Legacies and Development
 - Nunn, Nathan, “The Importance of History for Economic Development”, The Annual Review of Economics, 2009,1:65-92
3. The Neoclassical Model of Development
 - Caselli, F. and J. Feyrer, “The Marginal Product of Capital”, The Quarterly Journal of Economics, May 2007,122(2), 535-568
4. Human Capital and Development
 - Pritchett, Lant “Where Has All the Education Gone?” World Bank Economic Review, 2001, 15(3), 367-391.

5. Endogenous Growth Models
 - William, E. "Reliving the 50s: the Big Push, Poverty Traps, and Takeoffs in Economic Development" ,*Journal of Economic Growth*, December 2006,11(4): 289-318

6. Institutions and Development
 - Easterly, W. and R. Levine, "Tropics, germs, and crops: the role of endowments in economic development", *Journal of Monetary Economics*, January 2003, 50(1): 3-39.

7. Foreign Aid
 - Djankov, S. J.Montalvo and M. Reynal-Querol, "The Curse of aid", *Journal of Economic Growth*, June 2009.

8. Inclusive Development
 - Rauniar, G., & Kanbur, R. (2010). "Inclusive Development: Two papers on Conceptualization, Application, and the ADB Perspective", Department of Applied Economics and Management, Cornell University, Ithaca, New York.
 - Sachs, I. (2004). "Inclusive Development Strategy in an era of Globalization", Working Paper No. 35, Policy Integration Department, World Commission on the Social dimension of Globalization, International Labour Office, Geneva.

Recommended Books

1. Aghion, P. and S. Durlauf, editors, *Handbook of Economic Growth* (2 volumes), North-Holland: Amsterdam, Latest Ed.
2. Jessica Cohen and William Easterly, Editors, *What Works in Development? Thinking Big and Thinking Small*, Brookings Institution Press: Washington DC, Latest Ed.
3. Acemoglu, D., & Robinson, J. (2012). *Why Nations Fail: The Origin of Power, Prosperity and Poverty*. New York: Crown Business.
4. "Perspectives on the Post-2015 Development Agenda" (2014, June). Japan International Cooperation Agency Research Institute (JICA-RI).

Topics in International Trade

Course Code: Eco-507

Credit hours: 3(3-0)

Course Objective

The Course 'Advanced International Trade' intends to provide basic skills to the students who consider international trade as one of their research fields. The goal of this course is to train the students to do research in the field of international trade theoretically and empirically. By the end of the semester, students are expected to know both common techniques and the big picture of related literature when starting their own research or reading research papers written by others.

Learning Outcomes

This course enables the student to understand:

- Advanced theories/ models of international trade.
- Outsourcing of intermediate inputs.
- Trade under monopolistic competition and under restrictions and transfers.
- The opportunities for government to gain trade.
- Trade and endogenous growth.
- Trade and human rights
- Effects of integration.
- Regional trade agreements and gains from them.

Course Contents

- Ricardian Theory and the pattern of trade
- Pattern of Trade and the Heckscher Ohlin theory
- Specific factors model
- Generalization and empirical verification of H-O theory
- Trade in intermediate inputs and wages
- Increasing Returns and Gravity equation

- Movement of Labour and Capital between countries: migration
- Welfare and distributional impact of trade restrictions
- Political economy of trade policy
- Trade and endogenous growth
- New world trading environment
- WTO and its implication for Pakistan
- Trade regimes in Pakistan

Recommended Books

1. Berg , H. V., & Lewer , J. J. (2007). International Trade and Economic Growth . Aspk K. Ghosh , Prentice-Hall of India Private Limited .
2. Bhagwati, J. N., Panagariya, A., & Srinivasan , T. N. (1998). Lectures on International Trade (Vol. Second). MIT Press.
3. Carbaugh , R. J. (2020). International Economics (Latest Ed.).
4. Feenstra , R. C., & Taylor , A. M. (2008). International Economics. New York: Worth.
5. Feenstra, R. C. (2006). Advanced International Trade: Theory and Evidence . New Age International(P) Limited, Publisher.
6. Gerber , J. (2013). International Economics (Latest Ed.).
7. Kreinin , M. E. (2002). International Economics: A Policy Approach (Latest Ed.).
8. Krugman , P. R., Obstfeld , M., & Melitz , M. J. (2017). International Trade: Theory and Policy (Latest Ed.).

Topics in Monetary Economics and Application

Course Code: Eco-508

Credit hours: 3(3-0)

Course Objectives

This module aims to build strong theoretical background of the student regarding monetary economics. It will enhance their understanding of topical issues in the field of monetary economics and give students a comprehensive grasp of keystone of monetary policy analysis.

Learning outcomes

At the end of this course students should be able to:

- study monetary economics at a more advanced level.
- explain and discuss why people hold money.
- solve macroeconomic models and assess the role and efficacy of monetary policy for various types of models in both the Classical and Keynesian set-ups.
- demonstrate understanding of the channels of monetary policy transmission.
- evaluate effectiveness of the alternative tools of Monetary Policy under varying scenarios.
- discuss the merits and disadvantages of different monetary policies used by Central Banks

Course Contents

1. Introduction : Basic Concepts in Monetary Economics
2. Money : Functions of Money, Empirical Measures of Money, Fiat vs. Commodity Money, legal Tender
3. Inflation
4. Interest Rates
5. The Money Market
6. Money Supply
7. Money Demand : Informal & Formal Model, Empirical Money Demand Function, Baumol-Tobin Model, Velocity
8. The Static Classical and Keynesian Models: The IS &LM function, Aggregate Demand , Classical Aggregate Supply ,Keynesian Aggregate Supply ,Neutrality and Policy in the Classical Model ,Policy and Policy effectiveness in the Keynesian Model

9. The Steady Inflation: Real versus Nominal Interest Rate, Inflation in Classical Model , Analysis with Real Balance Effect & Output Effect., Welfare costs of the inflation
10. Inflationary Dynamics : Cagan Model
11. Phillips Curve :Classical and Keynesian , Lucas Monetary Misperceptions, Taylor's relative Price Theory, Fischer's Sticky-Wage Theory, Real Business Cycle theory
12. Channels of monetary policy transmission
13. Central bank's independence, transparency and accountability
14. Central bank reaction function, monetary policy rules
15. Monetary Policy Implementation
16. Targeting: Interest Rate, Money Supply, Exchange Rate, Inflation Rate.
17. Commodity Standards
18. Analysis of Alternative policy rule: Monetary policy ineffectiveness, Lucas Critique: money stock control, Policy Rules vs. Discretion, Seigniorage and the relationship between monetary and fiscal policies
19. Channels of monetary policy transmission
20. Central bank's independence, transparency and accountability

Recommended Books

1. Bennett T. McCallum (2018), *Monetary Economics: Theory and Policy*. New York: Macmillan Publishing.
2. Champ, B., Freeman, S., & Haslag, J. (2011). *Modeling Monetary Economics* (latest edition).USA: Cambridge University Press.
3. Godley, W., & Lavoie, M. (2007). *Monetary economics An Integrated Approach to Credit Money Income Production and Wealth* (latest edition) New York: Palgrave.
4. Walsh, C. E. (2010). *Monetary Theory and Policy* (3rd edition), USA: The MIT Press Cambridge, Massachusetts.
5. Fender, J. (2012). *Monetary Policy* (latest edition). UK: John Wiley & Son, Ltd.
6. Handa, J. (2009). *Monetary Economics* (latest edition) USA & Canada: Routledge.
7. Lewis, M. K. (2000). *Monetary Economics* (latest edition). Oxford University Press.
8. Mankiw, G. (2020). *Monetary Policy*. USA: The University of Chicago Press.
9. Mishkin, F. S. (2004). *The Economics of Money, Banking and Financial Markets*, (latest edition), New York: Pearson
10. Mishkin, F. S. (2007).*Monetary Policy Strategy*. USA: MIT Press.

Topics in Environmental and Natural Resource Economics

Course Code: Eco-509

Credit hours: 3(3-0)

Course Description

'Environmental and natural resource economics' provides an introduction to the economic principles that are essential to understand the environmental and natural resource issues. Environment and economics are inextricably linked, primarily through the concept of scarcity. In economics things have value because they are limited in availability. Environmental resources, from clean air to fish stocks are damaged by economic exploitation. Scarcity is the underlying theme of both economics and environmental studies.

Course Objectives

The aim of course is to provide better understanding that how both the markets and market failures affect the environment. Student will learn to analyze and evaluate the causes and solutions to market failure and environmental degradation. Students will also be able to understand international, national, and local policies regarding resource use and sustainable development and will be able to apply economic methods to environmental problems.

Course Contents

1. Introduction and Overview of the course

Environmental and resource economics, power of the markets, problems with markets

2. Market Forces and the Environment

Supply, demand, market equilibrium, using supply and demand for energy policies, land use with reference to quotas & taxes, comparing the quota and the tax

3. Markets and Market Failure

Private and public goods, Pareto improvement, market failure, open access resources, government-caused failure, commons problem, free rider problem

4. Measuring Benefits to Consumers

Total willingness to pay & consumer surplus, adding up and consumer surplus for i) market goods ii) public goods, exact money measures

5. Revealed Preference Methods

Some concepts using data to estimate demand through econometric techniques, estimating recreational demand, Hedonic pricing, estimating environmental benefits from poverty, values or wages, estimating willingness to pay for avoiding environmental damages

6. Measurement of Environmental Damages

Introduction, Valuation of benefits, Approaches for measuring the benefits of environmental improvement: The market pricing approach, the replacement cost approach, the household production function approach, the contingent valuation method

7. The Economics of Environmental Quality

Pollution control- A general model, pollution damages, pollution control in an industry, grandfathering under the clean air act, Abatement costs, the socially efficient level of emissions, enforcement cost, the Equimarginal principle applied, the emission reduction, long run sustainability.

8. Resource Management

Non-renewable resource management, opportunity cost and resource pricing, Hotelling model, running out of resource VS running out of environment, efficient renewable resource management, regulating renewable resource.

9. Economic Growth and the Environment (Applications)

Climate change, Market failure and economic growth, Do environmental regulations harm economic growth? The environmental Kuznets curve & demand for environmental quality, trade development and climate change, Pollution-Heaven hypothesis

10. State and Global Environmental Issues

Municipal solid waste, the economics of recycling, Ozone depletion, global warming, biological diversity.

Recommended Books

1. Berck, Peter and Helfand, Gloria (2011). The economics of the environment. Pearson Education, Inc., Upper Saddle River, New Jersey 07458 USA ISBN-978-81-203-4368-9.
2. Field, C. Barry and Field K. Martha (2006). Environmental Economics. An Introduction, 4th Edition. McGraw Hill, UK.
3. Joshi, V. M. (2001). Theories and Approaches of Environmental Economics. Atlantic Publishers and Distributors. New Delhi-110027.
4. Russell, S. Clifford. (2006). Applying Economics to the Environment. McGraw Hill, UK.
5. Stavins, N. Robert (2005). Economics of the environment. Selected readings. 5h edition. W. W. Norton and company, New York.
6. Teitenberg, H. Tom (2005). Environmental and natural resource Economics. Pearson Education.

Note: Different articles on related topics will be provided side by side.

Topics in Labour Economics

Course Code: Eco-510

Credit hours: 3(3-0)

Course Outline

Labour Market Overview

Basic Concepts in Labour Economics: Labour as Factor of Production, Positive vs. Normative Economics, Scarcity, rationality, ignorance, Prices and Labour Distribution, Measurement of the Labour Quantity and Quality, Demand for Labour and Supply of Labour, Actors in Labour Market, Labour Force: Employed and Unemployment

Demand for Labour

The Production Function, Profit Maximization: Marginal income from an Additional Unit of input, Marginal Expense of an Added Input. Short-Run Demand for Labour when Both Product and Labour Markets Expenses are Competitive: A critical Assumption, From Profit Maximization to Labour demand. Demand for Labour in Competitive Markets when other Inputs can be varied: long Run Demand Curve for Labour, More Than Two Inputs, Labour Demand when the Product Market is not Competitive: Maximizing Monopoly Profits, Do Monopolies Pay Higher Wages? Policy Application: the Labour Market effects of employer Payroll Taxes and Wages Subsidies

Labour Demand Elasticities

The Own-Wage Elasticity of Demand: Marshall Rule of Derived Demand, Estimates of Own-Wage Labour Demand Elasticities, Applying the Laws of Derived Demand: Inferential Analysis, The Cross-Wage Elasticity of Demand: can the Rules of derived Demand Be Applied to Cross-Elasticities, Estimates Relating to Cross-Elasticities. Policy Application: Employment Effects of Minimum Wage, Minimum Wage Laws and Poverty. Applying Concepts of Labour Demand Elasticity to the issues of Technological Changes

Supply of Labour

Labour Force and its Participation Rates, A Theory of the decision to Work: some Basic Concepts, Analysis of the Labour/Leisure Choice, the Labour Supply Curve, Estimation of Labour Supply Elasticities, Women Labour Supply, Empirical findings on the Income and Substitution Effects. Policy Applications: The Budget Constraints

with “Spikes”. Programs with Net Wage Rate of Zero, Subsidy Programs with Positive Net Wage Rates, benefits and the Return to Work

Models of the Labour Market

The Roy Model, the Generalized Roy Model, Treatment Effects, Duration Models and Search Models, and Forward looking dynamic models

Compensating Wages Differential and Labour Markets

The Role of Worker Preferences and Information in Job Matching: Individual Choices and its Outcomes, Assumptions and Predictions, Empirical Tests for Compensating Wage Differentials. Hedonic Wage Theory and the Risk of Injury: Employee and Employer Considerations, The Matching of Employers and Employees, Policy Application: Occupational Safety and Health Regulation. Hedonic Wage Theory and Employee Benefits: Employee and Employer Preferences, the Joint Determination of Wages and Benefits. Empirical Study: How Risky Are Estimates of Compensating Wage Differentials for Risk? The “Errors in Variables” Problem

Human Capital: Education and Training

The Basic Model of Human Capital: The Concept of Present Value, Modeling the Human Capital Investment Decision. The Schooling Model, Education and Earnings, Returns to Education and its Estimation. Education, earnings, and Post-Schooling Investment in Human Capital: Average Earnings and Educational Level, On-the-Job Training and the Concavity of Age- Earnings Profiles, The Fanning out of Age/Earnings Profiles, Women and the Acquisition of human capital. Education as a good Investment: Is Education a Good Investment for Individuals? Is Education a Good Social Investment? Is Public Sector Training a Good Social Investment? Empirical Studies about Estimating the Returns to Education

The Labour Market Effects of International Trade and Production Sharing

Effects of Trade on the Demand for Labour: Product Demand Shifts, Shifts in the Supply of Alternative Factors of Production, the Net Effect on Labour Demand. Wages Convergence across Countries: Subsidizing Human-Capital Investments, Income Support Programs, Subsidized Employment, How Narrowly Should WE Target Compensation? The Growth Effects of the Openness to Trade in case of Pakistan’s Economy

Recommended Books

1. Ashenfelter, O., and Card, D. (Eds.). (2011). Handbook of Labor Economics (1 ed. Vol. 4A and B) USA: Elsevier.

2. Borjas. (2012). Labor Economics (6 ed.) New York: McGraw-Hill.
3. Ehrenberg, R.G., and Smith, R.S. (2012). Modern Labor Economics Theory and Public Policy (11 ed.) USA: Pearson Education.
4. Bellante, D. and Jackson, M. (1997). Labour Economics. McGraw Hill, Inc, New York.
5. Custers, P. (1998). Capital Accumulation and Women's Labour in Asian Economics. Palgrave MacMillan, London.
6. Kiefer, N.M., and Neumann, G.R. (2006). Search Models and Applied Labor in Asian Economics. New York: Cambridge University Press.
7. Palokangas, T. (2000). Labour Unions, Public Policy and Economic Growth. Cambridge University Press, London. Smith, S.W. (2003). Labour Economics. Rout Ledge, London.
8. Smith S. W. (2003). Labour Economics. Rout Ledge, London.

Topics in Agricultural Economics

Course Code: Eco-511

Credit hours: 3(3-0)

Course Description

The course 'Topics in Agricultural Economics' as a study of economic principles, with emphases on their application to the solution of farm, agribusiness, and agricultural industry problems of Pakistan' economy.

Course Objective

The main purpose of this course is to use the tools of the economics discipline in order to under the agricultural economy of Pakistan and the world.

Course Outlines

- Consumer Equilibrium and Market Demand
- Introduction to Production and Market Equilibrium
- Economics of Input and Product Substitution
- Market Equilibrium and Product Price in Agricultural: Perfect Competition
- Market Equilibrium and Product Price in Agriculture: Imperfect Competition
- Natural resources, the Environment and Agriculture
- Government Interventions in Agriculture
- Theories and Strategies for Agricultural Development
- Macroeconomic Policy Actions and Agricultural Development of Pakistan
- Economic Development and Agriculture sector in Pakistan
- Women's Roles in the Agricultural Household
- Critical Analysis of Pakistan's Agricultural Tax
- Pakistan's Agricultural Trade Policy
- Agricultural Preferential Trading Arrangements

Recommended Books

1. Drummond, H.E., & Goodwin, J.W. (2011). *Agricultural Economics* (3 ed.) New Jersey: Prentice-Hall, Inc.
2. Evenson, R.E., & Pringali, P. (Eds.) (2010). *Handbook of Agricultural Economics: Agricultural Development Farm Policies and Regional Development Handbooks in Economics* (Vol.4). UK: Elsevier.
3. Norton, G.W., Alwang, J., & A., W. (2010). *Master Economics of Agricultural Development: world Food Systems and Resource Use* (2 ed.). London & New York: Routledge.

Reference Books

1. Desai, P.K. (2010). *Agricultural Economics India: Biotech Books*.
2. Penson, J.B., Capps, O., Rosson, C.P., and Woodward, R.T., (2006). *Introduction to Agricultural Economics*, 4th or 5th Edition, Pearson Prentice Hall, New Jersey.

Note: Research articles on different related topics will also be provided side by side by the class teacher and part and parcel of the course outline.

Economic Growth Models

Course Code: Eco-512

Credit hours: 3(3-0)

Course Objectives

This course aims at providing better understanding regarding to the application of the application of growth models in an economy. This course covers Classical, Neoclassical and Alternative Theories of Economic Growth. This course also helps in understanding the growth process and policy implications of theories of economic growth.

Course Outline

1. Theory of Economic Growth

i. Neoclassical Growth Theory and Standard Models

Classical to Neoclassical Growth Theory, The Basic Outline of Neoclassical Growth Models, The Solution with Technological Progress and a Cobb-Douglas Production Function, and Human Capital as an additional Factor of Production

ii. Growth Models with Spatial Externalities

Neoclassical Growth Model with Identical Steady States, Neoclassical Growth Model with different Steady States

iii. Convergence: Theory and Evidence

Convergence and Disparities of National Economies, the Formal Derivation of a Convergence Equation, Empirical Tests of Convergence

2. Alternative Theories of Economic Growth

The endogenous Nature of the “Natural” Rate of Growth, “Financialization” in Post Keynesian Models of Growth and Distribution, Inside Debt and Economic Growth: A Neo-Kaleckian Analysis. International and Regional Dimensions of Growth: Export-Led Growth, Trade and Economic Growth

3. Understanding the Growth Process

Finance and Growth, Technology Transfer and Cross-Country Convergence, Market Size and Directed Technical Change, General-Purpose Technologies, Stages of Growth, and Institutions and Nonconvergence Traps

4. Growth Policy

Fostering Competition and Entry, Investing in Education, Reducing Volatility and Risk, Liberalizing Trade, Preserving the Environment, and Promoting Democracy

Recommended Books

1. Aghion, P., and Howitt, P. (2009). *The economics of Growth*, London, England: the MIT Press.
2. Peters, M., and Simsek, A. (2009). *Introduction to Modern Economic Growth*. UK: Prenceton University Press.
3. Sardadvar, S. (2011). *Economic Growth in the Regions of Europe: Theory and Empirical Evidence from a spatial Growth Model*. London, New Yourk: Springer Heidelberg Dordrecht.

Reference Books

1. Setterfield, M. (Md.). (2010). *Handbook of Alternative Theories of Economic Growth*. UK: Edward Elgar Publishing Limited.
2. Salvadori, N. (Nd.). *The Theory of Econimic Growth: a 'Classical' Perspective*. UK, USA: Edward Elgar.

Topics in Public Sector Economics

Course Code: Eco-513

Credit hours: 3(3-0)

Course Objectives

The main objective of the course is that students not only be able to analyze

1. various aspects of fiscal policy but also be able to contribute to its formulation and implementation.
2. Students should also be able to conduct rigorous research on pertinent issues of public finance, particularly in case of Pakistan.

Learning Outcomes

After completing this course, students are expected to:

1. UNDERSTAND various aspects of public sector economics
2. ABLE to analyze various aspects of fiscal policy and understand its formation and implementation
3. CONDUCT rigorous research on pertinent issues of public finance

Course Contents

1.Introduction and overview

Defining public finance and fiscal policy, Size of public sector in developing countries, Main components of public finance – revenues and expenditures, Fiscal balance, budget balance and public debt, Important roles of fiscal policy – allocation, stabilization, redistribution and development, Fiscal federalism and fiscal decentralization

2.Public expenditure

Need for public provision of goods and services, Market efficiency, market failure, public goods, externalities, Coase theorem, Principles and theories of public expenditures, Wagner's law, Types of public expenditures: current and developmental with broad categories, Social security and income support programs, Public provision of education and health, Subsidies – types, need, impact and consequences, Public enterprises; private-public partnerships in provision of goods and services

3.Government revenues

Principles of taxation, Adam Smith's canons of taxation, Characteristics of a good taxation system, Theories of taxation, Partial equilibrium analysis, general equilibrium analysis of tax, Optimal taxation and income distribution, Tax rates and base – challenges in expanding

base in developing countries ,Taxable capacity/potential, Tax/GDP ratio, tax buoyancy, tax elasticity – why these are low in Pakistan, Tax evasion and tax avoidance, Optimal user fees to generate non- tax revenues

4.Important roles of fiscal policy

Theory and objectives of fiscal policy, Macroeconomic stabilization – low budget deficit, low inflation, Development – promotion of growth, building infrastructure, creation of employment, Redistribution – fiscal incidence, tax incidence, expenditure benefits

5.Public sector debt

Trends in public debt in developing countries, Causes of growing public debt, Management of public debt, Public Debt sustainability, Fiscal multipliers and debt sustainability debate

6.Public sector enterprise/state-owned enterprises (soe) – policy issues and options

Concepts and definitions, SOEs presence in developing countries including Pakistan, Policy issues and options

7. Fiscal federalism and fiscal decentralization

Essential features of a federal system, and set-up in Pakistan, Sources of lower-level governments – taxes and fees, tax sharing, grant-in-aid, loans, Defining fiscal decentralization, Advantages and opportunities, Disadvantages and challenges, Policy issues and options, Salient features of Pakistan National Finance Commission Award 2010

Recommended Books

1. Joseph E. Stiglitz. Economics of the Public Sector, W.W Norton & Company, New York, latest Edition.
2. Richard A. Musgrave and Peggy B. Musgrave, Public Finance in Theory and Practice, latest Edition.
3. Harvey S. Rosen and Ted Gayer. Public Finance, 2008. New York: Mc Graw Hill.
4. M. Maria John Kennedy, Public Finance, 2013, Delhi: PHI Learning Private Limited.

Issues in Health Economics

Course Code: ECO-514

Credit hours: 3(3-0)

Course Objectives

1. To develop an understanding on issues related to health economics,
2. To give students a basic grounding in the theory and practice of health economics.

Learning Outcomes

By studying this course, the students shall be able to:

1. UNDERSTAND economic evaluation of health
2. IDENTIFY, issues related to health insurance
3. MEASURE and EVALUATE health outcomes

Course Contents

1. Introduction

Health – a Priceless Commodity? The Micro- and Macroeconomic Views of Health Economics of Health’ vs. ‘Economics of Health Care’, A System Analysis of the Economics of Health and Health Care

2. Economic Valuation of Life and Health

Approaches to the Economic Evaluation of Health, Cost-Utility Analysis, Cost-Benefit Analysis, Cost-Utility, Cost-Benefit and Social Welfare Analysis

3. Individuals as Producers of Their Health

The Concept of Health Production, Health as Part of Human Capital, The Production of Health as the Modification of a Stochastic Process

4. Empirical Studies of the Production of Health

Studies Based on Aggregate Data, Studies Based on Individual Data, Demand for Health, Demand for Health Services

5. Health Goods, Market Failure and Justice

Market Failure in Markets for Health Goods, Market Failure in Health Insurance Markets, Justice as an Argument in Favor of Government Intervention in Rationing of Health Care Services

6. Optimal Health Insurance Contracts

Types of Health Insurance Contracts, Optimal Insurance Protection in the Absence of Moral Hazard, Optimal Insurance Coverage with Moral Hazard, Consequences for the Design of Social Health Insurance

7. Risk Selection in Health Insurance Markets

Modeling Risk Selection, Further Arguments in Favor of Risk Adjustment and Cost, Reimbursement, Designing Risk Adjustment Schemes, Designing Cost Reimbursement Schemes

8. Physicians as Suppliers of Medical Services

The Relationship Between Physician Density and the Utilization of Medical Services, The Hypothesis of Supplier-Induced Demand for Ambulatory Medical Services, Utility Maximization of the Physician and Supplier-Induced Demand, Physician Density and Utilization of Medical Services: Alternative Explanations, Empirical Examination of the Supplier-Induced Demand Hypothesis

9. Hospital Services and Efficiency

The Hospital as a Productive Unit, Comparing Hospital Efficiency

10. Paying Providers

Paying Providers to Achieve Cost Control, Concerns Beyond Cost Control, Implications for the Design of Payment Systems

11. Forms of Delivery of Medical Care

The Physician as the Patient's Agent, Complementary Principal-Agent Relationships in Health Care, The Managed Care Organization as an Alternative Form of Provision of Care

12. The Market for Pharmaceuticals

The Development of a New Drug, Pharmaceutical Innovation as an Investment, The Role of Patent Protection, Price Regulation of Pharmaceuticals, Price Competition on Pharmaceutical Markets

13. The Political Economy of Health Care

Collectively Financed Health Care in a Democracy, The Role of Professional Associations in Health Care

14. Future Challenges to Health Care Systems

The Technological Challenge, The Demographic Challenge, Demographic Ageing, Medical Progress, and Health Care Expenditure, International Challenges

Recommended Books

- Zweifel P, Boeyer F and Kifmann M (2009), health Economics, Springer.
- Glied S, Smith P. (2011) The Oxford handbook of health economics. latest ed. New York: Oxford University Press.
- Elliot R, Payne K. (2005) Essentials of economic evaluation in healthcare. Latest ed. London: Pharmaceutical Press.

REAL ANALYSIS

Course Code: ECO-515

Credit hours: 3(3-0)

Course Objectives

1. To provide an overview to students how the complex modeling works?
2. To introduce the advanced concepts and techniques related to the modeling economic issues.
3. To show the students some applications of real analysis in economic theory

Learning Outcomes

Upon successful completion of the course, the students will be able to:

1. UNDERSTAND how to use the concepts of Real Analysis in modelling Economic issues?
2. EVALUATE the deviations from the existing models in economic theory?
3. ACQUIRE the ability to model real economic issues. Overall Economy?

Course Contents

1. Introduction

The Real and Complex Number System, Truth Tables, Order Sets Fields, the Complex Fields, Euclidean Spaces

2. Basic Topology

Finite Sets, Countable Sets, and Uncountable Sets, Metric Spaces, Compact Sets, Perfect Sets, Connected Sets

3. Numerical Sequences and Series

Convergent Sequences, Some Special Sequences, Series, Power Series, Absolute Convergence, Addition and Multiplication of series

4. Continuity

Limits Functions, Continuous Functions, Continuity and Compactness, Continuity and Connectedness, Discontinuities, Monotonic Functions, Limits at Infinity

5. Differentiation

The Derivatives of Real Function, Mean Value Theorems, Continuity of Derivative, L'Hospital's Rule, Differentiation of Vector Valued Function, Taylor's Theorem

6. Sequences and Series of Functions

Uniform Convergence, Uniform Convergence and Continuity, Uniform Convergence and Integration, Uniform Convergence and Differentiation, The Stone-Weierstrass theorem

7. Functions of Several Variables

Linear Transformations, Differentiation, The Contraction Principle, The Inverse Function Theorem, The Implicit Function Theorem, The Rank Theorem, Determinants, Derivation of Higher Order, Differentiation of Integrals

Recommended Books

- Walter Rudin, Principles of Mathematical Analysis, McGraw-Hill, Inc. (latest edition)
- A.N. Kolmogorov and S.V. Fomin, Elements of Theory of Functions and Functional Analysis, Dover Publications; Dover Books on Mathematics edition (latest edition)
- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, Microeconomic Theory, Oxford University Press (latest edition)

TOPICS IN ISLAMIC ECONOMICS

Course Code: ECO-516

Credit hours: 3(3-0)

Course Objectives

1. The core objective of the subject is to make students understand in detail various debates related to Islamic economics.
2. To understand how conventional economics and differs than the concept of Islam.
3. How ethics help us in brining efficient allocation within and outside market

Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. ACQUIRE the basic understanding of Islamic Economics
2. EXPLORE the pitfalls in conventional economics.
3. UNDERSTAND the ethics in efficient allocation of resources

Course Contents

1. Introduction of Economics, economic and Economy: A positive Analysis
2. The focus of Conventional Economics: Market and the players of Market
3. Issues of Conventional Economic from Islamic perspective:
 - Debate of Want vs Need
 - Fulfilment of needs, Poverty and inequality
 - Wellbeing of few
 - Role of institutions in determining decisions
4. Requirement of an Islamic Economy
 - Paradigm shift: Conventional Philosophy vs Islamic Philosophy regarding world
 - Implications of Paradigm shift: Wellbeing of all
5. Distribution within market
 - Factors of Production: CE vs Islamic Approach
 - Capital as factor of Production: Debates related to interest, Time value of money, Islamic modes of finances and Islamic Banking
6. Distribution beyond Market:
 - Absence of beyond market concept in Conventional Economics
 - A comprehensive framework of Zakkat, Sadaqat and other Charites in Islam
7. Role of Government in Economy
 - Conventional vs Islamic debate

- Role of government beyond market
- Role of other institutions beyond market: Family, Neighbourhood, society, Mosque etc

8. Relationship between Iba'daat and Ma'milaat

- Role of ethics in determining efficient markets: Flow of good towards those who value the goods the most
- Role of ethics in determining efficiency beyond market: Flow of funds towards those who are needy the most
- Role of Ibadat in strengthening ethics
- Struggle for establishing and maintaining Islamic economy

Recommended Text

1. Hafiz Muhammad Yasin and Atiq Uz Zafar, Fundamentals of Islamic Economics and Finance, Inslamic Research and Training Institute, Islamic Development Bank, Jeddah (2016)
2. M.Umer Chapra (2000). Is it necessary to have Islamic economics?. Journal of Socio-Economics, 29 PP 21-37
3. M.Umer Chapra (1991). The need for a new economics system. Review of Islamic Economics,(Journal of the Islamic Economic Association published from Leicester, UK) Vol. 1, No.1, 1991 pp.9-47
4. Asad Zaman (1991) "Towards Foundation of an Islamic Theory of Economic Behavior", in F.R.Faridi (editor) Essays in Islamic Economics Analysis, New Delhi, Genuine Publications,
5. M. Umer Chapra (2007). Guarantee of satisfaction of fundamental needs (for Encyclopedia of Islamic Economics).
6. M. Umer Chapra (1999). Socioeconomic and political dynamics in Ibn Khaldun's thought. The American Journal of Islamic Social Sciences Vol. 16, No. 4, Winter 1999, pp.17-38
7. Rodney, Wilson (2007) Islamic Finance in Europe RSCAC Policy Papers 2007/02.
8. M. Fahim Khan, Essays in Islamic Economics, Islamic Foundation, Leicester, UK, 1995
9. Sayyid Tahir et al (Ed) 'Readings in Microeconomics: An Islamic Perspective' Longman, Malaysia (pp. 146- 156).
10. Khurshid Ahmad, Nature and Significance of Islamic Economics, in Khurshid Ahmad, Studies in Islamic Economics, Islamic Foundation, UK, December, 1980.
11. Nejatullah Siddiqi (1988), "Guarantee of a Minimum Level of Living in an Islamic State", in Munawar Iqbal (ed.) Distributive Justice and Need Fulfilment in an Islamic Economy, Islamic Foundation, 1988.

TOPICS IN ECONOMICS OF HAPPINESS AND WELL-BEING

Course Code: ECO-517

Credit hours: 3(3-0)

Course Objectives

In this course students will be learning about:

1. How do economists measure utility, value, and welfare?
2. Are the current methods of assessing happiness and well-being accurate?
3. Are the current methods comprehensive?
4. How to empirically analyze the happiness and wellbeing

Learning Outcomes

By the end of this course, students should have;

1. A broad UNDERSTANDING of the term “happiness” and its significance in various fields of Economics.
2. RECOGNIZE why the convoluted nature of human behavior makes it difficult to measure, the different approaches of evaluating it
3. IDENTIFY the drawbacks and advantages of each approach.
4. RELATE their knowledge of behavioral economics and human psychology to the context of their own lives, values, culture and national economy.

Course Contents

1. Introduction

Introduction to quality of life, life satisfaction, happiness and wellbeing. Definitions, terms, and conceptual framework. Types of wellbeing: Objective and subjective wellbeing

2. Theoretical and Philosophical Foundations

Foundations for quality of life, Hierarchy and philosophy of happiness, Theories of happiness and wellbeing, Religious, Philosophical and psychological foundations of happiness, Human welfare, social justice and wellbeing, Preservation of living conditions and intergenerational justice, Art and Culture: Philosophy, Experience and Quality of Life/life satisfaction/happiness, Miscellaneous [Easterlin Paradox]

3. Indicators of Happiness and wellbeing

Complexities of human behavior, Conventional approaches, Heterodox approaches, Recent developments [Sen’s Wellbeing Index, Human Development Index, Divine Well-

being Index, Happy Planet Index, Lagatum Prosperity Index etc. Causes and consequences in happiness, Social indicators – instruments for the improvement and preservation of quality of life, Living conditions, life domains, and quality of life ,Happiness over the life cycle

4.Methods, Measurement and Assessments

Measurement of happiness and wellbeing, Economic perspective of measuring happiness
Non-economic perspective of measuring happiness, Multidimensional wellbeing indexes
New survey methods for the measurement of happiness and quality of life, Quantitative and Qualitative methods to study happiness/life satisfaction

5.Critique

Comparison of available surveys, data sets and techniques, Comparison of developed, developing and Muslim countries

6.Field Report

Student shall conduct a small survey of their respective localities and present a report in a standard format, Case Studies

Recommended Books

1. Veenhoven, Ruut (1984), “Conditions of Happiness”, ISBN 978-94-0096432-7. Springer Publication.
2. Veenhoven, Ruut (1984), “Databook of Happiness”, ISBN 90- 277- 1793- 1.Reidel Publishing, Dordrecht/Boston Lancaster.
3. Bruni and Porta (2007), “Handbook on the Economics of Happiness”. Edward Elgar Publishing Limited.
4. Bruni and Porta (2007), “Economics & Happiness; Framing the analysis”.Oxford University Press.
5. Frey and Stutzer (2002), “Happiness and Economics”. Princeton University Press
6. Hudson (1996), “Happiness and the limits of Satisfaction”, Rowman an Littlefield Publishers, Inc.
7. Frey, Bruno S. (2008), “Happiness; A Revolution in Economics”. MIT Press.