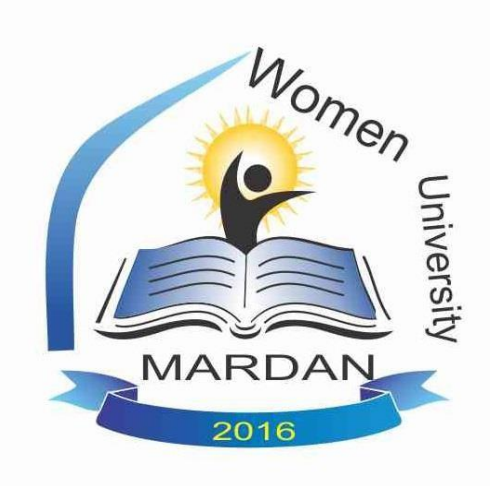
CURRICULUM

OF

M.PHIL. (2-YEAR) ECONOMICS

(2022 Onwards)



WOMEN UNIVERSITY MARDAN

CONTENTS

Title of Course	Page No.
1. Introduction	03
2. Scheme of Studies for M. Phil. Economics 2 Years (4 Semesters)	04
3. Detail of Courses for M.Phil. Economics	04
4. Semester-wise Breakdown of Courses	
i. Semester I (1st Year)	07
ii. Semester II (1st Year)	21
iii. Semester III (2nd Year)	
iv. Semester IV (2nd Year)	
5. Optional Courses	35

DEPARTMENT OF ECONOMICS

Economics determines much of today's social and political landscape. As we know, it is the science of decision making. As individuals, communities, companies and governments, we face choices every day, weighing up costs and benefits of our decisions. With the ongoing drive of globalization, economics remains a key element. As a result, the demand for fresh economics graduates is on the rise. This is because these students will be well equipped with various tools and techniques to solve complex problems on any scale.

Women University Mardan has introduced MSc in Economics to provide advanced training in economic analysis. The program offers a wide range of optional subjects as well. It offers students the opportunity to study particular areas of economics in greater depth, from both a theoretical and an empirical perspective.

The Master's Program in Economics is a two-year academic program, designed to produce professional economists with a grip over analytical skills and the ability to contribute into development of policies and undertake independent research. Similarly, M.Phil. is a two-year academic program. It not only aims to prepare the theoretical foundations of the students but also requires them to undertake a research thesis in the final year.

The degrees in Economics are professional degrees that will prepare students for careers in the private sector as economic analysts in business, consultancy firms, financial institutions, and applied research firms. They may also find jobs in international organizations, government, and non–profit organizations (non-government organizations, universities, and other teaching jobs).

M.Phil. (2-YEAR) Economics

(Revised Scheme of Studies)

Department of Economics

1st Year

1st Semester				2nd Semester		
Course Code	**Course Title**	**Credit Hour**		**Course Code**	**Course Title**	**Credit Hour**
ECON-701	Advance Microeconomics (Compulsory)	03		ECON-702	Advance Macroeconomics (Compulsory)	03
ECON-703	Econometric Methods-I (Compulsory)	03		ECON-704	Econometric Methods - II (Compulsory)	03
ECON-709*	Topics in International Economics (Optional*)	03		ECON-718*	Research Methodology in Economics (Optional*)	03
ECON-707*	Issues in Development Economics (Optional*)	03		ECON-713*	Topics in Environmental and Natural Resource Economics (Optional*)	03
Total		12		Total		12

- **DETAIL OF COURSES FOR M.PHIL. ECONOMICS**
- **Compulsory Courses (Credit Hours: 12)**

Course Code	Course Title	Credit Hours
ECON-701	Advance Microeconomics	03
ECON-702	Advance Macroeconomics	03
ECON-703	Econometric Methods – I	03
ECON-704	Econometric Methods – II	03

- **Optional Courses* (Credit Hours: 12)**

Course Code	Course Title	Credit Hours
ECON-705	Public Sector Economics	03
ECON-706	Advance Monetary Economics	03
ECON-707	Issues in Development Economics	03
ECON-708	Topics in Labor Economics	03

ECON-709	Topics in International Economics	03
ECON-710	Globalization and Economic Integration	03
ECON-711	Topics in Islamic Economics	03
ECON-712	Topics in Experimental Economics	03
ECON-713	Topics in Environmental and Natural Resource Economics	03
ECON-714	The Economics of Climate Change	03
ECON-715	Topics in Economics of Happiness and Well-Being	03
ECON-716	Issues in Health Economics	03
ECON-717	Topics in Financial Economics	03
ECON-718	Research Methodology in Economics	03
ECON-719	Structural Equation Modelling	03
ECON-720	Real Analysis	03
ECON-721	Divine Economics Framework	03

The above Optional* courses will be offered by the department.

- Optional*; may be offered subject to the availability of faculty.
- All the above courses are compulsory unless mentioned therein.

2nd Year

3rd & 4th Semester		
Course Code	**Course Title**	**Credit Hours**
ECON-799	M. Phil Thesis/Dissertation	06
Total		06

Duration: 2 Years (minimum)

Total Credit Hours = 30 Hours (Course Work: 24, Research Thesis: 06)

Compulsory = 12 Cr. Hours

Optional = 12 Cr. Hour

Semester I

Course Breakdown
Semester I

1st Semester		
Codes	**Subject**	**Credit Hour**
ECON-701	**Advance Microeconomics (Compulsory)**	**03**
ECON-703	**Econometric Methods-I (Compulsory)**	**03**
ECON-709*	**Topics in International Economics (Optional*)**	**03**
ECON-707*	**Issues in Development Economics (Optional*)**	**03**
Total		**12**

ADVANCE MICROECONOMICS

Course code: ECON-701 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course approaches microeconomic analysis at an advanced level, presenting some formal techniques used in economic research as well as critical perspectives. Topics include elements of choice and decision theory, theory of the consumer and the firm, social choice and aggregation, and general equilibrium theory. Adequate mathematical background, including thorough prior familiarity with multivariate analysis and constrained optimization, linear algebra, and methods of abstract notation, reasoning and proof making, is assumed. Knowledge of elementary set theory and real analysis would be helpful.

COURSE OBJECTIVES:

- The aim of this course is to introduce students to some of the techniques of microeconomic analysis, used to develop the basis for an informed perspective on microeconomic theory and its application.
- Microeconomics will be presented here as being more than a technical apparatus: a domain of unsettled questions and live debates, many fundamental in nature, reflecting the existence of different descriptive and prescriptive views of the world.
- It is hoped that a student who takes the class will, despite the constraints we face, gain some exposure to forms of reasoning and substantive topics which will serve as useful reference points in subsequent study and research.
- To provide with the basic tools and concepts required to understand scientific papers at the research frontier of microeconomic theory.

COURSE LEARNING OUTCOMES:

After completing this course, students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions. By the end of this course, students should be able to:

- UNDERSTAND consumer choice, producer behavior under different scenarios, equilibrium stability analysis and other advance topics of microeconomics
- APPLY the concepts of microeconomics in real life
- CALCULATE and INTERPRET technical concepts, such as Shephard Lemma, Roy's identity, Hotelling Lemma.
- DEFINE and CALCULATE advance topics such as degree of risk averseness, efficiency, etc.
- EXPLAIN consumer choices and producer decisions in different scenarios.

COURSE CONTENTS:

1. Perspectives and Orientation

- The character of social enquiry and explanation, the place of methodological individualism, economics as language.

2. Background to Mathematics

- Mathematical spaces, functions and relations in set theory, distance functions, n-dimensions in consumer / producer bundles, introduction to modern analysis.

3. Consumer Theory

- Preference relation, choice behavior, relation between preference relation and choice behavior, choice rules, competitive budgets, demand functions and their comparative statics, weak axiom of revealed preference, recent developments in preferences in behavior.
- Law of demand, utility maximization problem, Walrasian demand function, Expenditure minimization problem, Hicksian demand function, Duality, Relation between demand, indirect utility, and expenditure function, Roy's Identity, aggregate demand and wealth, relation of aggregate demand to weak axiom, Existence of representative agent.
- Choice Under Uncertainty, Expected Utility Theory, simple vs. complex lottery and their relation, von-Neumann Morgenstern expected utility function, Money Lotteries and Risk Aversion, Competitive Equilibrium.

4. Production Theory

- Production sets, Constraints, Production functions such as Leontief, Cob-Douglas, CES and Translog production function.
- Profit maximization, cost minimization, Revenue maximization, Geometry of cost and supply, single output model as a special case, aggregation of supply curves in mathematical spaces and derivation of market supply curve, Hotelling's Lemma, Shephard's lemma, Efficiency in production, recent advances in production theory.

5. Equilibrium Analysis

- Pareto Optimality, First Order Conditions for Pareto Optimality, First Welfare Theorem, Second Welfare Theorem, partial equilibrium, 2x2 production model, free entry and long-run competitive equilibria, difference between partial and general equilibrium, pure Exchange, and Edgeworth Box, 2x2 production model, separating hyper-plane theorem and proof of existence of GE, Local uniqueness, and Index theorem, Equilibrium stability analysis, comparative statics of GE.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
  Sessional Examination
  Quizzes
  Assignments
  In-Class Activities
  Class participation

- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green, Microeconomic Theory, Oxford University Press (latest edition).
- Hall Varian, Microeconomic Analysis, W.W. Norton and Company, (latest edition).
- Geoffrey A. Jehle and Philip J. Reny, Advanced Microeconomic Theory, Pearson Education Limited, England (latest edition).
- Samuel Bowles, Microeconomics: Behavior, Institutions and Evolution, Princeton University Press (Latest edition).
- Ariel Rubinstein, Lecture Notes in Microeconomic Theory (available on the author's website http://arielrubinstein.tau.ac.il/).

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ECONOMETRIC METHODS – I

Course code: ECON-703 **Credit Hours: 03**
Contact Hours: 48

COURSE DESCRIPTION:

This course emphasizes on modern techniques appropriate for the analysis of economic data. The purpose of this course is to provide necessary econometric theory and concepts to students to become sound applied economists who should know what econometric methods could be used under different circumstances and how to interpret and appraise the estimated results of the empirical analysis.

COURSE OBJECTIVES:

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

COURSE 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:

- UNDERSTAND advance econometric techniques and their appropriate use
- APPLY the concepts to integrate the economic phenomena and be able to make a choice of appropriate model and estimation technique.
- ESTIMATE and INTERPRET econometric models
- CONDUCT independent empirical analysis of data from real world economic situations
- DEFINE and CALCULATE advance topics such as degree of risk averseness, efficiency, etc.
- 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 Test 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.

4. **Data Problems**
   - Multicollinearity,
   - Missing values and data imputation,
   - Measurement error,
   - Outliers and influential observations.

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

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

7. **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.

8. **Functional Form and Structural Change**
   - Dummy variable and dummy trap,
   - Threshold effects and categorical variables,
   - Treatment effects and difference in differences regression.

9. **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.

10. 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.

11. Structural Regression Models

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

12. Models for Panel Data

- Pooled Regressions,
- Fixed effects,
- Random effects.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- 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)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN INTERNATIONAL ECONOMICS

Course code: ECON-709 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

International economics deals with the economic activity from international perspective in productive resources, consumer preferences and associated international institutions. It pursues to elucidate the patterns and consequences of transactions and interactions between the people from different nations, and regions.

COURSE OBJECTIVES

The main objectives of the course are:

1. To explore and apply the theoretical models of trade into practices
2. To provide information regarding the role of trade in the overall economic development of the country**.**
3. Enabling the students to critically analyze various trade polies and their outcomes

COURSE LEARNING OUTCOMES:

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

- ACQUARE the basic knowledge of international trade
- EXPLORE the existing trade patterns and theories.
- UNDERSTAND the functioning of foreign exchange market and balance of payments

COURSE CONTENTS

1. **Microeconomic Aspects of International Economics**
2. **Theories of international specialization and exchange**
   - Absolute Advantage theory
   - Comparative Advantage theory
   - Opportunity cost theory
3. **Trade policy and economic welfare**
   - Restrictions on the flow of international trade
   - Partial equilibrium analysis of Tariffs
   - Arguments of trade protection
4. International factor movement
5. Trade and growth
6. Trade and technical progress
7. Product cycle
8. H.O. theory and factor price equalization theorem
9. Contemporary trade models including gravity type models
10. Regional trading blocs
11. WTO and trade liberalization.
12. B.O.P. deficit and approaches to B.O.P.
13. Determinants of foreign exchange rates

- Spot and forward exchange rate
- Hedging
- Speculations
- Arbitrage

14. **Foreign direct investment,**

15. **International financial institutions and their role- IMF, World Bank, and Asian Development Bank**

- The classical Gold Standard Period
- The inter war period
- Operation and evolution of the Bretton Woods System
- The Collapse of the Bretton Woods System

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Salvatore, D. (2012). International economics. Wiley Global Education.
- Krugman, P. R. (2011). International economics: Theory and policy, 11/E. Pearson Education India.
- International Economics: Peter H. Lindert & Thomas A. Pugel . Latest Edition
- Bosodersten. International Economics. Latest edition
- International Trade 3rd Edition by Robert C. Feenstra , Alan M. Taylor
- Applied International Trade Analysis By Harry P. Bowen
- Exchange Arrangements and Foreign Exchange Markets (2003.): Development and Issues (World Economic and Financial Surveys) by International Monetary Fund (IMF)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ISSUES IN DEVELOPMENT ECONOMICS

Course code: ECON-707 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course covers a wide range of issues relevant to less-developed countries. The purpose of the course is to provide students with an overview of important topics in development economics. The first part of the course provides an overview of how to measure development, as well as the various theories behind development. The second part of the course introduces students to special topics in development economics such as trade, population, agriculture, education, and health. The third part of the course will discuss the role of aid in development and the measurement of the impact of development aid. Tutorials will focus on the analytical concepts discussed in the lecture and provide practical examples.

COURSE OBJECTIVES:

- To provide students with an overview of important topics in development economics,
- To understand the issues in development economics,
- To understand the linkage between economic development and different sectors of economy.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- To UNDERSTAND and EVALUATE various theories of development
- To IDENTIFY the pillars of development
- To ANALYSE the role of various sectors in development of country.

COURSE OBJECTIVES:

1. Measurement of Development

- What is development,
- Indicators of development.

2. Comparative Economic Development

- The world in 1960
- Heterogeneity in the development experience 1960-2010
- Differences in the patterns of development in Asia, Africa, Middle East, transition countries
- Resulting evolution of global inequality

3. Theories of Development

- Development as economic growth
- Theories of structural change
- Modernization theories
- Dependency theories
- Dualistic theories.

4. Population and Development

- Does population growth hinder development?

- How to affect population growth?

5. Agriculture and Development

- The role of agriculture in economic development
- How to boost agricultural productivity

6. Education and Development

- The role of education in economic development
- How to promote education?

7. Health and Development

- Linkage's health and development
- How to promote better health

8. Development Aid

- The role of aid in economic development
- Aid allocation
- Aid effectiveness

9. Trade and Development

- Can trade promote development?
- Primary exports-based trade
- Export-promotion policies

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Todaro, Michael P. and Stephen C. Smith (2015). *Economic Development*, 12th Edition, Person Educational Limited, Harlow.
- Perkins, Radelet, Lindauer, Block (2012) Economics of Development, 7th edition, Norton Press

- Meier, Gerald M. and James E. Rauch (2005). *Leading Issues in Economic Development*, 8th Edition, Oxford University Press, New York.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

Semester II

Course Breakdown
Semester II

2nd Semester		
Course Code	**Course Title**	**Credit Hour**
ECON-702	**Advance Macroeconomics (Compulsory)**	**03**
ECON-704	**Econometric Methods - II (Compulsory)**	**03**
ECON-718*	**Research Methodology in Economics (Optional*)**	**03**
ECON-713*	**Topics in Environmental and Natural Resource Economics (Optional*)**	**03**
Total		**12**

ADVANCE MACROECONOMICS

Course code: ECON-702 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

Macroeconomics is the study of the determinants of aggregate trends in the economy. The determinants of long-run economic growth, and the causes and consequences of short-run business cycle fluctuations are the two main areas to be discussed in the broader field of macroeconomics. The focus of this course is on the tools and models of modern economic growth theory, the business cycle theory, and the consumer's behavior. The growth models discussed are the Solow economic growth model, the endogenous growth model and growth models with human capital and natural resources. Modern macroeconomic theory is micro founded, and it uses models and mathematical tools to quantitatively explain stylized empirical facts. The objective of this course is to introduce students to the main theories concerning the central questions in economic growth. The need is to translate the theory into policy which in a complex and difficult field is a craft. Hence the diversity of schools in addressing macroeconomic issues to reach to some policy will be discussed in the course from conventional as well as Islamic perspective.

COURSE OBJECTIVES:

- To comprehend macroeconomic problems and policy prescriptions suggested by different school of thoughts.
- To understand the motivation, intuition and implications of each model discussed, and to learn the mathematical or numerical tools needed to solve these models.
- To know the limitations of growth models.
- After the completion of the course students will learn and develop their understanding of the global move towards tackling macroeconomic problems.

COURSE LEARNING OUTCOMES:

After the successful completion of the advanced macroeconomics course students are able to:

- **UNDERSTAND, a**nalyze and evaluate the most fundamental growth models in macroeconomics
- **COMPREHEND** the factors behind the economic growth
- **ANSWER** many questions after the completion of the course like why some countries are rich and others are poor? How do countries grow? What are the sources of business fluctuations? What are the determinants of consumption and investment? Why is there unemployment? What are the sources of inflation?
- **DESIGN** a theoretical framework or empirical model for their own research

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 polices.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- David Romer. Advanced Macroeconomics, McGraw Hill, New York (2006)
- Acemoglu, Daron. Introduction to Modern Economic Growth, Princeton University Press. (2009)
- William Scarth, Macroeconomics: The Development of Modern Methods for Policy Analysis. (2nd Edition)
- James K. Glabaith and William Darity, Macoeconomics, Netherlands. (2005)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ECONOMETRIC METHODS - II

Course code: ECON-704 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course emphasizes on modern techniques appropriate for the analysis of time series and panel data. It covers a wide range of topics on Time Series Econometrics and Panel Data. The purpose of this course is to provide sufficient knowledge for handling and estimating time series / panel data.

COURSE OBJECTIVES:

- To develop understanding of advance techniques in time series econometrics
- To enable the students to handle huge data sets
- To apply appropriate estimate techniques on data and properly interpret the results
- To enable students to give policy guidelines on the basis of empirical estimation

COURSE LEARNING OUTCOMES:

After completing this course, students are expected to:

- UNDERSTAND advance econometric techniques for handling time series and panel data
- APPLY the concepts to integrate the economic phenomena and be able to make a choice of appropriate model and estimation technique.
- ESTIMATE and INTERPRET econometric models
- CONDUCT independent empirical analysis of data from real world economic situations
- EXPLAIN the results and give policy guidelines on the basis of empirical estimations.

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,
- ' r h e 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Walter Ender, Applied Econometric Time Series, 4th Edition, Wiley Series in Probability and Statistics
- W. Charemza, D. Deadman , New Directions in Econometric Practice: General to Specific Modeling, Cointegretation and Vector Autoregression analysis,2nd Edition, Edward Elgar Publications
- Marno Verbeek, A Guide to Modern Econometrics, 2nd Edition, John Wiley Publications

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

RESEARCH METHODOLOGY IN ECONOMICS

Course code: ECON-718 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course is designed to enable the students to understand the basics of research and its process adopted in field of economics, which include the research fundamentals, research design, literature review, data sciences, sampling, data analysis and thesis/ report writing.

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.

COURSE LEARNING OUTCOMES:

By studying this course the students shall be able to:

- IDENTIFY economic problems and ANALYZE them by using scientific process of empirical inquiry in economics discipline.
- Possess UNDERSTANDING about conducting research in economics based on certain economic issue.
- EVALUATE the research question; explore the strengths of various methods, and techniques to address the stated problem.
- 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.

TEACHING METHODOLOGY

- Lectures
- In Class Activities
- Written Assignments
- Practical assignments based on applied issues in economics in the region.
- Class Presentations

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Kothari, C.R.(2004),Research Methodology: -Methods and Techniques, New Delhi, Wiley Eastern Limited.
- Dawson,Catherine (2002), Practical Research Methods, New Delhi, UBS Publishers Distributors
- Kumar, Ranjit (2005), Research Methodology-A Step-by- Guide for Beginners, (2nd.ed.),Singapore, Pearson Education.
- Etheridge Don E. (2004) Research Methodology in Applied Economics: Organizing, planning and Conducting Economic Research, 2nd ed. Blackwell Publishing
- Creswell, J. W. (2005), Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, Prentice-Hall publishing Co. Inc. NJ

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

Course code: ECON-713 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

The course aims at explaining issues related to the extraction, exploitation, planning and management of resources. The interface of resources with human systems (e.g., economic growth, city-building, politics) will always be central to the discussion. But, an underlying narrative is how the control of population growth and the genetic engineering of biota (including humans) can buy us time until the planet sorts out both our own preponderance for more. While the scope of the course will be international, the essential Pakistani resource debates represent the core: agriculture, the fishery, forestry, mining, petroleum (oil and natural gas), soil and water. The approach of the course, meanwhile, is inter-disciplinary, and draws upon the geographic sub-disciplines of planning, management, environmental assessment, etc. to flesh out the concerns and debates. This permits the course to entertain how societies nest and endure within the biosphere.

OBJECTIVES:

The instant course has been designed with following specific objectives:

- To impart basic understanding of the concepts of the Environment and Natural Resources.
- To increase knowledge about the importance of environment and sustainable Natural Resources Management.
- To outline possible future environment and Natural Resources issues and their solutions.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- CLARIFICATION of the concept of environment and Natural Resources.
- UNEDERSTAND the causes of environmental degradation due to unsustainable use of natural resources and the pertinent threats from the unsustainable use of natural resources to the economy.
- IDENTIFY the potential measures needed for sustainable use of natural resources for better environment and economy development.
- Can APPLY the tools to address environment and natural resources related research, planning and policy options.

COURSE CONTENTS:

1. Introduction to Environment and Natural Resources;

- environmental studies as politically-left, and geography as politically-neutral; natural versus environmental resources; renewable versus non-renewable resources.
- Planning versus management.
- Sustainability versus where we are today.

2. Integration;

- From integrated watershed management to integrated resource management,
- Regional land-use planning, and ecosystem-based planning and management, to integrated resource and environmental management.

3. Exploration of Dynamics, Uncertainty and Equity Issues Underpinning Environmental and Resource Issues.

4. Natural Resources

- Agriculture Land
- Aquaculture
- Forestry.
- Mining
- Petroleum
- Alternative energy
- Cities, management of resources in cities.
- Urban agriculture
- Local and regional planning capacity. How to plan communities for more sustainable resource use. Using local resource management objectives to solve global concerns. Solving things at local level.
- The policy instruments for natural resource management.
  - Direct regulation of the environment.
  - Tradable permits.
  - Taxes and subsidies
  - Refunded emissions payments.
  - Property rights, legal instruments, and informational policies.
  - Regulations for fuel efficiency and fuel quality and vehicle standards.
  - Alternative energy like wind, concentrated solar, solar photo voltaic, geothermal, hydroelectric, tidal, wave, nuclear.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Lederman, Daniel & William Mahoney (eds.). (2006). Natural resources, neither curse nor destiny. Washington, D.C.
- Miller, G. Tyler & Scott Spoolman. (2010). Environmental science. 13th edition. Belmont, CA: Brooks/Cole.
- Sterner, T. (2003). Policy instruments for environmental and natural resource management. Washington, D.C.
- Panwara, N. et al. (2011). Role of renewable energy sources in environmental protection: A review. Renewable and Sustainable Energy Reviews, 15(3), 1513–1524.
- Ross, M. (2012). The oil curse: How petroleum wealth shapes the development of nations. Princeton, NJ: Princeton University Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

OPTIONAL SUBJECTS

PUBLIC SECTOR ECONOMICS

Course code: ECON-705 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

In first part the emphasis will be on the importance of public finance and fiscal policy. Fiscal policy perhaps is the most important economic policy with strong linkages to other policies such as monetary and trade policies. In second part the course analyses public expenditure side of public finance. After that it explains how to finance these through various taxes and other sources and focuses on fiscal deficit and it's financing. Fiscal federalism is norm in many developing countries including Pakistan. Various tiers of government including central, provincial and local have their expenditures and revenues. The course will not be complete without looking at the public finances of various tiers of government. In this context, final part of the course discusses fiscal decentralization, its opportunities, challenges and policy issues. How Pakistan has been dealing with such challenges and policy issues is embodied in the latest Pakistan National Finance Commission Award 2010. Salient features of this award are discussed in this final part.

COURSE OBJECTIVES:

- The main objective of the course is that students not only be able to analyze various aspects of fiscal policy but also be able to contribute to its formulation and implementation.
- Students should also be able to conduct rigorous research on pertinent issues of public finance, particularly in case of Pakistan.

COURSE LEARNING OUTCOMES:

After completing this course, students are expected to:

- UNDERSTAND various aspects of public sector economics
- ABLE to analyze various aspects of fiscal policy and UNDERSTAND its formation and implementation
- 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion

- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

• Joseph E. Stiglitz. Economics of the Public Sector, W.W Norton & Company, New York, 2000.
• Richard A. Musgrave and Peggy B. Musgrave, Public Finance in Theory and Practice, Fifth Edition.
• Harvey S. Rosen and Ted Gayer. Public Finance, 2008. New York: McGraw-Hill.
• M. Maria John Kennedy, Public Finance, 2013, Delhi: PHI Learning Private Limited.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ADVANCE MONETARY ECONOMICS

Course Code: ECON-706 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course will explain core aspects of monetary economics. In specific the focus will be on monetary policy and the interaction of monetary phenomenon with rest of the macro economy. For that purpose, several key theoretical frameworks will be constructed, and various monetary economic phenomena including monetary policy actions will be analyzed within such frameworks.

COURSE OBJECTIVES:

- To help students understand the core aspects of monetary economy
- To explain how monetary phenomena and policies are determined
- To clarify the interaction of monetary phenomena with the rest of the macro economy.

COURSE LEARNING OUTCOMES:

After completing this course, students are expected to:

- ACQUIRE the knowledge of various aspects of monetary policy and working of central bank
- Able to ANALYZE the impact of monetary policy and economy
- UNDERSTAND the dynamics of open economy macroeconomics

COURSE CONTENTS:

1. Introduction to money and monetary economics

- The nature of money:
  - o What is money and what does it do? Functions of money.
  - o Definitions of money.
  - o Money supply and money stock.
  - o Nominal versus the real value of money.
- Money and the macro economy:
  - o The determination of aggregate demand and supply of money.
  - o The classical paradigm in macroeconomics.
  - o The Keynesian paradigm in macroeconomics. New Classical models.
  - o New Keynesian models.
  - o Monetary policy transmission mechanism.

2. Monetary policy

- Stylized facts and monetary policy.
- The Classical approach to monetary - flexible price.

The Keynesian approach to monetary policy — nominal rigidities.

- The New Keynesian approach to monetary policy — nominal rigidities.
- The welfare effects of inflation and monetary policy. Time inconsistency problem.
- Monetary policy rules.

3. Monetary policy and central banking

- Money supply, interest rates and the operating targets of monetary policy.
- The central bank: Goals, targets and instruments.
- The central bank: Independence, transparency and credibility.

4. The Open Economy and Monetary Policy

- Exchange rate and the international monetary system.
  - o Exchange rate determination.
  - o Fixed versus flexible exchange rates.
  - o Policy independence and exchange rate flexibility.
  - o Flexible exchange rate and insulation from foreign shocks
- Monetary policy in open economy.
  - o The Mundel- fleming Model.
  - o The case of imperfect capital mobility: Monetary policy under fixed and flexible exchange rates.
  - o The case of perfect capital mobility: Monetary policy under fixed and flexible exchange rates.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

• Jogdish Handa, Monetary Policy, Routledge London and New york (latest edition).
• Carl E. Walsh, Monetary Theory and Policy, MIT Press Cambridge (latest edition).
• John McArthur, The Economics of Money, Banking and Financial Markets, Pearson, Toronto, Canada (latest edition).

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ISSUES IN DEVELOPING ECONOMICS

Course code: ECON-707 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course covers a wide range of issues relevant to less-developed countries. The purpose of the course is to provide students with an overview of important topics in development economics. The first part of the course provides an overview of how to measure development, as well as the various theories behind development. The second part of the course introduces students to special topics in development economics such as trade, population, agriculture, education, and health. The third part of the course will discuss the role of aid in development and the measurement of the impact of development aid. Tutorials will focus on the analytical concepts discussed in the lecture and provide practical examples.

COURSE OBJECTIVES:

- To provide students with an overview of important topics in development economics,
- To understand the issues in development economics,
- To understand the linkage between economic development and different sectors of economy.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- To understand and evaluate various theories of development
- to identify the pillars of development
- to analyses the role of various sectors in development of country.

COURSE OBJECTIVES:

1. Measurement of Development

- What is development,
- Indicators of development.

2. Comparative Economic Development

- The world in 1960
- Heterogeneity in the development experience 1960-2010
- Differences in the patterns of development in Asia, Africa, Middle East, transition countries
- Resulting evolution of global inequality

3. Theories of Development

- Development as economic growth
- Theories of structural change
- Modernization theories
- Dependency theories
- Dualistic theories.

4. Population and Development

- Does population growth hinder development?
- How to affect population growth?

5. Agriculture and Development

- The role of agriculture in economic development
- How to boost agricultural productivity

6. Education and Development

- The role of education in economic development
- How to promote education?

7. Health and Development

- Linkages health and development
- How to promote better health

8. Development Aid

- The role of aid in economic development
- Aid allocation
- Aid effectiveness

9. Trade and Development

- Can trade promote development?
- Primary exports-based trade
- Export-promotion policies

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Todaro, Michael P. and Stephen C. Smith (2015). *Economic Development*, 12th Edition, Person Educational Limited, Harlow.
- Perkins, Radelet, Lindauer, Block (2012) Economics of Development, 7th edition, Norton Press

- Meier, Gerald M. and James E. Rauch (2005). *Leading Issues in Economic Development*, 8th Edition, Oxford University Press, New York.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN LABOR ECONOMICS

Course code: ECON-708 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course focuses on the description of Labor Economics as a whole. It covers the dimensions of labor supply and demand and their interaction in alternative market structures to explain levels of wages, employment and various employer/employee behavior.

COURSE OBJECTIVES

Labor Economics has increasingly become an area for the application of micro and macro theory. It is the fundamental purpose of this course to capture the content and the attendant excitement of these changes.

- The main purpose is to familiarize the student with the issues in Labour market.
- To study a wide variety of areas, such as the determinants of labor demand and supply, determination of wages, labor quality, labor force participation, labor unions, government legislation and regulations for labor market, labor mobility, migration and efficiency, labor productivity, unemployment and its causes, link with inflation and growth etc.

COURSE LEARNING OUTCOMES:

By the end of this course students will develop a knowledge in variety of areas in Labor Economics. Initially starting from a simple model, the students will be able to proceed, gradually, to a much fuller understanding of labor economics and labor markets.

- ANALYZE the theoretical framework to understand the working of labor markets by applying the basic principles of labor economics.
- DEVELOP skills to measure and calculate labor force participation rate, unemployment rate across gender
- CREATE, INTERPRET and ANALYZE labor data in preparation for bargaining
- DESCRIBE types and models of discrimination within the workplace

COURSE CONTENTS:

1. Labor Economics Introduction & Overview
2. The Theory of Individual Labor Supply
3. Labor Force Participation Rates and Hours of Work
4. Labor Quality: Investing in Human Capital
5. The Demand for Labor
6. Wage Determination and Resource Allocation
7. Labor Unions and Collective Bargaining
8. The Economic Impact of Unions
9. Government and the Labor Market
10. Labor Market Discrimination
11. The Wage Structure
12. Personal Distribution of earnings
13. Mobility, Migration and Efficiency
14. Labor Productivity: Wage, Prices & Employment
15. Labor Share of the National Income

16. Employment and Unemployment
17. Wages and Inflation
18. Labour and Economic Growth in Developing countries
19. Labour Policies in Pakistan Economy
20. Special Topics: Women Labor Supply and Wages, Impact of climatic shocks on labor markets and schools with particular emphasis on income and Substitution effect, Length of job queues, Child Labor

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Contemporary Labor Economics, Campbell R. McConnel, Stanley L. Brue, 2nd Edition, McGraw Hill (International Edition),1993.
- Labor Economics-Choice in Labor Markets, Don Bellante and Mark Jackson, 2nd Edition, McGraw Hill,1987.
- Labor Economics, Borjas, 4th Edition, McGraw Hill (International Edition),2009.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN INTERNATIONAL ECONOMICS

Course code: ECON-709 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

International economics deals with the economic activity from international perspective in productive resources, consumer preferences and associated international institutions. It pursues to elucidate the patterns and consequences of transactions and interactions between the people from different nations, and regions.

COURSE OBJECTIVES

The main objectives of the course are:

1. To explore and apply the theoretical models of trade into practices
2. To provide information regarding the role of trade in the overall economic development of the country**.**
3. Enabling the students to critically analyze various trade polies and their outcomes

COURSE LEARNING OUTCOMES:

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

- ACQUARE the basic knowledge of international trade
- EXPLORE the existing trade patterns and theories.
- UNDERSTAND the functioning of foreign exchange market and balance of payments

COURSE CONTENTS

1. **Microeconomic Aspects of International Economics**
2. **Theories of international specialization and exchange**
   - Absolute Advantage theory
   - Comparative Advantage theory
   - Opportunity cost theory
3. **Trade policy and economic welfare**
   - Restrictions on the flow of international trade
   - Partial equilibrium analysis of Tariffs
   - Arguments of trade protection
4. International factor movement
5. Trade and growth
6. Trade and technical progress
7. Product cycle
8. H.O. theory and factor price equalization theorem
9. Contemporary trade models including gravity type models
10. Regional trading blocs
11. WTO and trade liberalization.
12. B.O.P. deficit and approaches to B.O.P.
13. Determinants of foreign exchange rates
    - Spot and forward exchange rate
    - Hedging

- Speculations
- Arbitrage

14. Foreign direct investment,

15. International financial institutions and their role- IMF, World Bank, and Asian Development Bank

- The classical Gold Standard Period
- The inter war period
- Operation and evolution of the Bretton Woods System
- The Collapse of the Bretton Woods System

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Salvatore, D. (2012). International economics. Wiley Global Education.
- Krugman, P. R. (2011). International economics: Theory and policy, 11/E. Pearson Education India.
- International Economics: Peter H. Lindert & Thomas A. Pugel . Latest Edition
- Bosodersten. International Economics. Latest edition
- International Trade 3rd Edition by Robert C. Feenstra , Alan M. Taylor
- Applied International Trade Analysis By Harry P. Bowen
- Exchange Arrangements and Foreign Exchange Markets (2003.): Development and Issues (World Economic and Financial Surveys) by International Monetary Fund (IMF)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books

GLOBALIZATION AND ECONOMIC INTEGRATION

Course code: ECON-710 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course introduces and critically examines the processes involving the increasing interconnection of the world and its effects on people's lives. The course provides an interdisciplinary perspective on major concepts in order to make sense of the changes taking place at a global scale. It also explores existing debates and case studies in order to illustrate the ongoing challenges that communities face. The main **goal** of this course is to encourage a critical awareness on the most pressing global issues affecting human beings around the world and on the ways in which cope with social change. In order to accomplish this goal, students are asked to reflect on the impact of globalization in our daily lives.

This course starts with a review of the history of globalization across the advanced economies. It examines the broad trends in the great two eras of globalization, the first one covering the period 1850 up until the First World War and the second following the end of the Second World War. The reason why capital may not flow to poor countries is also examined. The course then turns towards issues related to distributional and poverty consequences of globalization. The course covers international trade and global economy. In this course the growth of globalization, the relations between globalization capitalism and new technologies are studied.

COURSE OBJECTIVES:

- The aim of the course is to give students a deep underestanding of what globalization is and how to manage domestic economy in a globalized world.
- To study the effects of globalization on developed and underdeveloped countries,

COURSE LEARNING OUTCOMES:

Students will rapidly become participants and will acquire the following practical skills:
Ability to IDENTIFY the issues of globalization,

- CRITICALLY EVALUATE the policy consequences of trade reform, especially for national economic development
- EVALUATE and critically assess national compliance with World Trade Organization requirements at national and firm level

COURSE CONTENTS:

1. The driving forces behind economic globalization
2. Distributional and poverty consequences of globalization
3. Globalization and technology transfer
4. Human resource development, globalization and growth
5. Miracle growth and economic crisis in East Asia
6. Globalization, institutions and governance
7. The political economy of outward dependency
8. The role of regional economic ıntegration in development
9. The role of government and the trade unions
10. Quality of life and health outcomes of gloalization
11. Human trafickkiing and gloablization

12. Islam and globalization

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Stiglitz, J. E. (2002). Globalization and its Discontents. New York.
- Freidman, T. (2005). The world is flat. New York: Farrar, Straus and Giroux.
- Bhagwati, J. (2007). In defense of globalization: With a new afterword. Oxford University Press.
- Stiglitz, J. E. (2008). Making Globalization Work. WW Norton & Company.
- O'Rourke, Kevin H., and J. G. Williamson (1999), Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy, MIT Press
- Findlay, Ronald and Kevin H. O'Rourke (2007). Power and Plenty: Trade, War, and the World Economy in the Second Millennium. Princeton University Press.
- Yarbrough, B. V., & Yarbrough, R. M. (2014). Cooperation and governance in international trade: The strategic organizational approach. Princeton University Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN LSLAMIC ECONOMICS

Course code: ECON-711 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

The objective of studying social sciences is to help in achieving human wellbeing. However, the definition of human wellbeing depends solely on the concept regarding this life and universe. If this concept regarding is secular, then the human wellbeing is defined mostly in material term and the analytical framework in social sciences becomes positive. However, if the concept regarding this universe is divine, then the human wellbeing is defined in both material and non-material term. In addition, the framework becomes normative. Positive analysis is then undertaken to see the gap between what is and what should be.

We know that the framework in conventional economics is secular. Hence, the objective of every member in a society is to maximize his/her own material well-being. According to neo-classical paradigm individuals maximize the welfare of a society while maximizing their self-interest. The reason they claim is that there is no clash between the interest of individual and the interest of a society. In other words, there exist no fallacies of composition. That is, whatever is in the self-interest of an individual, is also in the interest of a society as a whole. The market forces by default bring reconciliation between the self and social interest. Hence, there is no need to motivate economics agent for behaving in line with the interest of society. Keynesians though believe on the clash between self and social interest and admit the existence of fallacies of composition such as 'paradox of thrift' and 'liquidity trap' however, they believe that such anomalies can be resolved by appropriate government intervention and not by changing the fundamental objective of individuals. Still, we are observing many economic issues in the world. In this subject we will discuss how Islam provide a better alternative.

COURSE OBJECTIVES:

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

COURSE LEARNING OUTCOMES:

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

- ACQUARE the basic understanding of Islamic Economics
- EXPLORE the pitfalls in conventional economics.
- 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Hafiz Muhammad Yasin and Atiq Uz Zafar, Fundamentals of Islamic Economics and Finance, Inslamic Research and Training Institute, Islamic Development Bank, Jeddah (2016)
- M.Umer Chapra (2000). Is it necessary to have Islamic economics?. *Journal of Socio-Economics*, 29 PP 21-37
- 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
- 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,
- M. Umer Chapra (2007). Guarantee of satisfaction of fundamental needs (for Encyclopedia of Islamic Economics).
- M. Umer Chapra .(1999). Socieconomic and political dynamics in Ibn Khaldun's thought. *The American Journal of Islamic Social Sciences* Vol. 16, No. 4, Winter 1999, pp.17-38
- Rodney, Wilson (2007) *Islamic Finance in Europe* RSCAC Policy Papers 2007/02.
- M. Fahim Khan, Essays in Islamic Economics, Islamic Foundation, Leicester, UK, 1995
- Sayyid Tahir et al (Ed) 'Readings in Microeconomics: An Islamic Perspective' Longman, Malaysia (pp. 146- 156).
- Khurshid Ahmad, Nature and Significance of Islamic Economics, in Khurshid Ahmad, Studies in Islamic Economics, Islamic Foundation, UK, December 1980
- 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
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Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN EXPERIMENTAL ECONOMICS

Course code: ECON-712 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

Experimental Economics is a branch of Economics that uses controlled experiments to evaluate theories and behavioural assumptions, as well as to test policies and their implementation. The course will introduce students to experimental methods as applied in Economics and will present key findings from laboratory experiments. During the course, students will revisit some topics familiar to them from previous years (mostly from Microeconomics – such as bargaining, public goods, competitive markets), introduce some new topics (e.g. auctions, behavioral game theory), and evaluate the predictive power of the different economic theories.

COURSE OBJECTIVES:

The aim of the course is to

- Introduce students to laboratory experiments as a method for empirical investigation,
- Offer an alternative approach to analyze economic problems,
- Evaluate the predictive power of different economic theories,
- Facilitate a deep understanding of the topics to be covered by exposing students to the problem at hand.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- The course aims to provide a deep UNDERSTANDING of behavior in a variety of markets - for example markets with price controls, markets for trading long-lived assets and auction markets.
- Students will LEARN about social dilemmas that arise when people try to provide public goods voluntarily, lobby to influence governments, or when sellers try to conspire to fix prices.
- Students will also DEMONSTRATE and UNDERSTAND how people bargain with each other and interact in institutions where they need to trust each other.

COURSE CONTENTS:

1. Introduction to Experimental Economics
2. Markets Institutions and Invisible hand theory
3. Market Experiments
4. Asset Markets and Price Bubbles
5. Market Failure due to Unravelling: Lemons and Matching Markets
6. Bargaining and Behavioural Labour Economics
7. Public Goods & Enforcement of Cooperation
8. Designing an Experiment
9. Behavioral Game Theory
10. Auctions
11. Decision Making & Risk

12. Presentation of Term Papers

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Charlie Holt's (2007) "Markets, Games, and Strategic Behavior", Pearson Education Inc.
- Dan Friedman's and Shyam Sunder's (1994) "Experimental Methods: A Primer for Economists", Cambridge University Press.
- Colin Camerer (2003), *Behavioral Game Theory*, Princeton University Press.
- Douglas Davis and Charlie Holt (1993), *Experimental Economics*, Princeton University Press.
- John Kagel and Alvin Roth (1995), *Handbook of Experimental Economics*, Princeton University Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

Course code: ECON-713 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

The course aims at explaining issues related to the extraction, exploitation, planning and management of resources. The interface of resources with human systems (e.g., economic growth, city-building, politics) will always be central to the discussion. But an underlying narrative is how the control of population growth and the genetic engineering of biota (including humans) can buy us time until the planet sorts out both our own preponderance for more. While the scope of the course will be international, the essential Pakistani resource debates represent the core: agriculture, the fishery, forestry, mining, petroleum (oil and natural gas), soil and water. The approach of the course, meanwhile, is inter-disciplinary, and draws upon the geographic sub-disciplines of planning, management, environmental assessment, etc. to flesh out the concerns and debates. This permits the course to entertain how societies nest and endure within the biosphere.

COURSE OBJECTIVES:

The instant course has been designed with following specific objectives:

- To impart basic understanding of the concepts of the Environment and Natural Resources.
- To increase knowledge about the importance of environment and sustainable Natural Resources Management.
- To outline possible future environment and Natural Resources issues and their solutions.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- CLARIFICATION of the concept of environment and Natural Resources.
- UNEDERSTAND the causes of environmental degradation due to unsustainable use of natural resources and the pertinent threats from the unsustainable use of natural resources to the economy.
- IDENTIFY the potential measures needed for sustainable use of natural resources for better environment and economy development.
- Can APPLY the tools to address environment and natural resources related research, planning and policy options.

COURSE CONTENTS:

1. Introduction to Environment and Natural Resources:

- environmental studies as politically left, and geography as politically neutral; natural versus environmental resources;
- renewable versus non-renewable resources.
- Planning versus management.
- Sustainability versus where we are today.

2. Integration;

- From integrated watershed management to integrated resource management,

- Regional land-use planning, and ecosystem-based planning and management, to integrated resource and environmental management.

3. Exploration of Dynamics, Uncertainty and Equity Issues Underpinning Environmental and Resource Issues.

4. Natural Resources

- Agriculture Land
- Aquaculture
- Forestry.
- Mining
- Petroleum
- Alternative energy
- Cities, management of resources in cities.
- Urban agriculture
- Local and regional planning capacity. How to plan communities for more sustainable resource use. Using local resource management objectives to solve global concerns. Solving things at local level.
- The policy instruments for natural resource management.
  - o Direct regulation of the environment;
  - o Tradable permits;
  - o Taxes and subsidies
  - o Refunded emissions payments;
  - o Property rights, legal instruments, and informational policies;
  - o Regulations for fuel efficiency and fuel quality and vehicle standards.
  - o Alternative energy like wind, concentrated solar, solar photo voltaic, geothermal, hydroelectric, tidal, wave, nuclear.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Lederman, Daniel & William Mahoney (eds.). (2006). Natural resources, neither curse nor destiny. Washington, D.C.
- Miller, G. Tyler & Scott Spoolman. (2010). Environmental science. 13th edition. Belmont, CA: Brooks/Cole.
- Sterner, T. (2003). Policy instruments for environmental and natural resource management. Washington, D.C.
- Panwara, N. et al. (2011). Role of renewable energy sources in environmental protection: A review. Renewable and Sustainable Energy Reviews, 15(3), 1513–1524.
- Ross, M. (2012). The oil curse: How petroleum wealth shapes the development of nations. Princeton, NJ: Princeton University Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS OF CLIMATE CHANGE

Course code: ECON-714 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

Pakistan being an agro-based economy is at threat due to the global climatic changes. The country is sensitive to both increases in temperature and changes in precipitation. These could increase vulnerabilities for agriculture, forest and water resources upon which depend our economy and livelihoods. The effects of climate change on different sectors of the economy particularly agriculture and other natural resources may vary across the diverse ecological regions. In the dry western mountainous areas, the increase in temperatures could enhance the process glacier melt by affecting our water resources on which the country depends for agriculture and energy production. The major human induced factors causing environmental degradation are mismanagement / over exploitation of natural resources, deforestation and unsustainable agricultural practices.

Timely preparation to climate change is needed to reduce the adverse impacts of climate change in all sectors of the economy in general and agriculture, livestock, forest and water resources in particular. This would include re-orientation of knowledge, research and development process to sustain the economy from the vagaries of the climate change. It is therefore high time to include courses like Economics of Climate Change in a bid to produce required manpower skilled with climate change knowledge who can propose appropriate policy and development prescriptions to the policy makers and implementing agencies for sustained economic development and meeting the targets set under Sustainable Development Goals.

COURSE OBJECTIVES:

The instant course has been designed with following specific objectives:

- To impart knowledge of climate change mechanism.
- To increase knowledge about identified impacts on economic development, natural resources and poverty at global and local level.
- To discuss and compare the theoretical economic solutions to combating climate change.
- Modeling and forecasting climate change impacts including climate corridors.
- To outline possible future climate policy issues and their solutions.

COURSE LEARNING OUTCOMES:

It is expected that a successful teaching of the course will result in the following outcomes.

- Acquire clarification of climate change mechanism.
- Understand the pertinent threats from the climate change to the global and local economy.
- The impacts of climate change on economic development, natural resources, well-being and poverty.
- Evaluate the potential measures needed to minimize adverse impact of climate change to the economy.
- Solve the issues applying the models and tools while addressing climate change related research.
- Demonstrate ability to contribute to the knowledge generation, policy formulation and development domain pertaining to climate change.

COURSE CONTENTS:

1. Global Climate Change Scenario

2. Consequences Demonstrated of Climate Change

- Green House Gas Effect
- Trends in Global Carbon Emissions
- Trends and Projections for Global Climate
- Impact on water resources
- Impact on land, forests and rangeland resources
- Impact of human migration
- Impact on natural disasters.
- Impact on human health.

3. Economic Analysis of Climate Change

- Cost-Benefit Studies of Global Climate Change
- Forecasting modeling
- Modeling climate corridors
- Climate Change and Inequality

4. Policy Responses to Climate Change

- Adaptation and Mitigation
- Climate Change Adaptation to various resources
- Climate Change Mitigation: Economic Policy Options identified for Pakistan
- Carbon Taxes
- Tradable Permits
- Carbon Taxes or Cap and Trade
- Other Policy Tools such as Subsidies, Standards, R&D, and Technology Transfer
- The Technical Challenge
- Ant others

5. Climate Change Policy in Practice

- COP 23 and beyond
- How adequate or inadequate are the commitments
- Regional, National and Local Actions
- Pakistan specific actions committed, ground situation and future needs.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments

- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Ackerman, Frank, and Elizabeth A. Stanton. 2008. "The Cost of Climate Change." Natural Resource Defense Council. www.nrdc.org/globalwarming/cost/cost.pdf.
- Carl, Jeremy, and David Fedor. 2016. "Tracking Global Carbon Revenues: A Survey of Carbon Taxes versus Cap-and-trade in the Real World." *Energy Policy* **96**: 50-77.
- Dietz, Simon, and Nicholas Stern. 2014. "Endogenous Growth, Convexity of Damages and Climate Risk: How Nordhaus' Framework Supports Deep Cuts in Carbon Emissions." Grantham Research Institute on Climate Change and the Environment, Working paper No. 159, June.
- Fankhauser, Samuel. 1995. *Valuing Climate Change: The Economics of the Greenhouse.* London: Earthscan.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN ECONOMICS OF HAPPINESS AND WEL-BEING

Course code: ECON-715 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

The measurement of well-being, or happiness, through direct subjective assessment has come to complement and challenge established thought in economic theory and policy. This course treats modern understandings of the definition, measurement, and determinants of subjective well-being and their implications for policy, growth, and the environment.

COURSE OBJECTIVES

In this course students will be learning about:

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

COURSE LEARNING OUTCOMES:

By the end of this course, students should have;

- A broad UNDERSTANDING of the term "happiness" and it is significance in various fields of Economics.
- RECOGNIZE why the convoluted nature of human behavior makes it difficult to measure, the different approaches of evaluating it
- IDENTIFY the drawbacks and advantages of each approach.
- 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Veenhoven**,** Ruut (1984)**, "**Conditions of Happiness"**,** ISBN 978-94-009-6432-7. Springer Publication.
- Veenhoven, Ruut (1984), "Databook of Happiness", ISBN 90- 277- 1793- 1. Reidel Publishing, Dordrecht/Boston Lancaster.
- Bruni and Porta (2007), "Handbook on the Economics of Happiness". Edward Elgar Publishing Limited.
- Bruni and Porta (2007), "Economics & Happiness; Framing the analysis*"*. Oxford University Press.
- Frey and Stutzer (2002), "Happiness and Economics". Princeton University Press
- Hudson (1996), "Happiness and the limits of Satisfaction", Rowman and Littlefield Publishers, Inc.
- Frey, Bruno S. (2008), "Happiness; A Revolution in Economics". MIT Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

ISSUES IN HEALTH ECONOMICS

Course code: ECON-716 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

Health is generally considered as a priceless commodity. This course emphasizes on the practical issues faced by decision makers with reference to allocating scarce resources to maximize health benefits. It will focus on the economic evaluation of health and highlights the economics of health insurance.

COURSE OBJECTIVES:

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

COURSE LEARNING OUTCOMES:

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

- UNDERSTAND economic evaluation of health
- IDENTIFY, issues related to health insurance
- 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Zweifel P, Boeyer F and Kifmann M (2009), health Economics, Springer.
- Glied S, Smith P. (2011) The Oxford handbook of health economics. 1st ed. New York: Oxford University Press.
- Elliot R, Payne K. (2005) Essentials of economic evaluation in healthcare. 1st ed. London: Pharmaceutical Press.

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

TOPICS IN FINANCIAL ECONOMICS

Course code: ECON-717 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course will provide an overview of financial economics. It gives an overview of quantitative methods in finance. It explains the behavior of 'risk averse' consumer. Present a comprehensive discussion on portfolio theory, the Capital Asset Pricing Model and multi-factor asset pricing models. It also explains Minsky's Financial Instability Hypothesis and financial crises.

COURSE OBJECTIVES:

- To equip students with an understanding of fundamental concepts in modern finance,
- To develop a range of appropriate analytical skills, including dynamic and theoretic methods
- To develop in students the capacity to apply analytical techniques to real world problems,
- To understand the connection between economics and finance.

COURSE LEARNING OUTCOMES:

On successful completion of this course students will be able to:

- CRITICALLY analyze financial markets
- UNDERSTAND the quantitative methods in finance
- ANALYZE financial instability and crisis

COURSE CONTENTS:

1. An introduction to Financial Economics

2. Uncertainty and risk

- states of nature,
- contingencies (events),
- information,
- contingent goods, contingent plans,
- preferences over contingent plans,
- alternative notions of risk.

3. Alternative institutional contexts of risk sharing

- contingent markets,
- security markets,
- real/financial securities, bonds, stocks, options, derivative securities.

4. Individual behavior under uncertainty

- the no arbitrage principle.

5. Economies with uncertainty

- Contingent markets equilibrium,
- Asset markets equilibrium, the no arbitrage property of asset prices,
- Asset market completeness, equivalence between asset markets and contingent markets, optimality properties of complete asset structures and policy implications,

- Asset pricing techniques: arbitrage pricing theory, the capital asset pricing model,
- The Modigliani-Miller theorem of corporate finance.
- Incomplete asset markets, causes and consequences.
- Information, (rational) expectations.
- Bond yields and interest rate risk
- The term structure of interest rates,
- Minsky's Financial Instability Hypothesis and Financial Crises

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Marc Oliver Rieger and Thorsten Hens, Financial Economics: A Concise Introduction to Classical and Behavioral Finance, Springer (latest edition)
- Evstigneev, Klaus Reiner Schenk-Hoppé, and Thorsten Hens, Mathematical Financial Economics: A Basic Introduction, Springer (latest edition)
- Michael Magill and Martine Quinzii, Theory of Incomplete Markets, The MIT Press, Cambridge (volume: 1)
- Darrell Duffie, Security Markets: Stochastic Models, Academic Press, Boston, Finance (latest edition)
- Bodie, Ariff, da Silva Rosa, Kane and Marcus, Investments, McGraw Hill Publications, Australia (latest edition)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

RESEARCH METHODOLOGY IN ECONOMICS

Course code: ECON-718 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course is designed to enable the students to understand the basics of research and its process adopted in field of economics, which include the research fundamentals, research design, literature review, data sciences, sampling, data analysis and thesis/ report writing.

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.

COURSE LEARNING OUTCOMES:

By studying this course the students shall be able to:

- IDENTIFY economic problems and ANALYZE them by using scientific process of empirical inquiry in economics discipline.
- Possess UNDERSTANDING about conducting research in economics based on certain economic issue.
- EVALUATE the research question; explore the strengths of various methods, and techniques to address the stated problem.
- 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.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Kothari, C.R.(2004),Research Methodology: -Methods and Techniques, New Delhi, Wiley Eastern Limited.
- Dawson,Catherine (2002), Practical Research Methods, New Delhi, UBS Publishers Distributors
- Kumar, Ranjit (2005), Research Methodology-A Step-by- Guide for Beginners, (2nd.ed.),Singapore, Pearson Education.
- Etheridge Don E. (2004) Research Methodology in Applied Economics: Organizing, planning and Conducting Economic Research, 2nd ed. Blackwell Publishing
- Creswell, J. W. (2005), Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research, Prentice-Hall publishing Co. Inc. NJ

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

STRUCTURAL EQUATION MODELLING

Course code: ECON-719 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

This course emphasizes on structural equation modeling. In specific it will explain the handing and treatment of Latent variable which are not measurable, such as shadow economy, lawlessness etc.

COURSE OBJECTIVES:

- Develop understanding about the application of structural equation modeling,
- Enable the students to handle Latent variable,
- Equip the students with knowledge of path analysis and Confirmatory Factor Analysis.

COURSE LEARNING OUTCOMES:

By the end of this course, students should be able to:

- ENABLE to apply SEM to various sets of data with various characteristics. Substantively, students LEARN how to apply SEM to substantive research questions in the behavioral and social sciences, specifically in child development and education.
- To UNDERSTAND the common applications of SEM to cross-sectional, continuous, multivariate-normally distributed data, students also learn how to apply SEM to multigroup data, longitu-dinal data, non-normal data, and (other) discrete data.
- INDEPENDENTLY use a computer program for the application of SEM and the SKILL to use it with various sets of data (small and large; cross-sectional, multigroup, and longitudinal; cor-relational and experimental; continuous and discrete).

COURSE CONTENTS:

1. Fundamentals of Structural Equation Modeling/CV-SEM vs PLS-SEM

- Basic concepts,
- Latent versus observed variables,
- Exogenous versus endogenous latent variables,
- The factor analytic model,
- The full latent variable model,
- General purpose and process of statistical modeling,
- The general structural equation model, Symbol notation,
- The path diagram, Structural equations, Nonvisible components of a model, Basic composition,
- The formulation of covariance and mean structures

2. Path Analysis

- Introduction,
- Path Diagrams,
- Rules for Determining Model Parameters,
- Parameter,
- Estimation,
- Parameter and Model Identification,

- Model-Testing and -Fit Evaluation,
- Example Path Analysis Model,
- Modeling Results,
- Testing Model Restrictions in SEM, Model Modifications.

3. Confirmatory Factor Analysis.

- What Is Factor Analysis?
- Factor Analysis Model,
- Identification,
- Estimation,
- Model Evaluation,
- Modeling Results,
- Testing Model Restrictions: True Score Equivalence

4. Structural Regression Models.

- What is a Structural Regression Model?
- An Example Structural Regression Model,
- Modeling Results,
- Factorial Invariance across Time in Repeated Measure Studies

5. Latent Change Analysis

- Measuring change in individual growth over time: The general notion,
- The hypothesized dual-domain LGC model, Modeling intra individual change,
- Modeling inter-individual differences in change,
- Testing latent growth curve models: A dual-domain model, The hypothesized model, Selected AMOS output: Hypothesized model, Testing latent growth curve models: Gender as a time-invariant predictor of change.

6. Mediation

- Introduction,
- Applications of the Mediation Model,
- Single Mediator Model, Single Mediator Model Details,
- Multiple Mediator Model,
- Path Analysis Mediation Models,
- Latent Variable Mediation Models, Longitudinal Mediation Models, Multilevel Mediation Models, Mediation and Moderation, Mediation in Categorical Data Analysis, Computer Intensive Methods for Mediation Models, Causal Inference for Mediation Models

7. Moderation

- Introduction,
- Applications of the Moderation Model,
- Estimation, interpretation

8. MIMIC Modeling

- Multiple Indicators Multiple Causes (MIMIC) model involves using latent variables that are predicted by observed variables

9. Bootstrapping as an aid to non-normal data

- Basic principles underlying the bootstrap procedure,
- Benefits and limitations of the bootstrap, Procedure,
- Caveats regarding the use of bootstrapping in SEM Modeling with AMOS Graphics,
- The hypothesized model, Characteristics of the sample, Applying the bootstrap procedure,

- Selected AMOS output, Parameter summary, Assessment of normality, Statistical evidence of non-normality, Statistical evidence of outliers, Parameter estimates and standard errors, Sample ML estimates and standard errors, Bootstrap ML standard errors, Bootstrap bias-corrected confidence intervals

10. AMOS/Smart PLS/R Software for application

- Getting to Know the AMOS Program,
- Structure of Input Files for SEM Programs,
- Introduction to the AMOS Notation and Syntax,
- Introduction to the AMOS Notation,
- Introduction to the AMOS Notation and Syntax

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Handbook of Structural Equation Modeling Edited by Rick H. Hoyle
- A First Course *in* Structural Equation Modeling *Second Edition* Tenko Raykov, *Michigan State University* and George A. Marcoulides *California State University, Fullerton*
- Introduction to Statistical Mediation Analysis by David P. Mackinnon
- Principles and Practice of Structural Equation Modeling, Third Edition, Rex B. Kline
- Structural Equation Modeling with AMOS, SECOND EDITION, Barbara M. Byrne
- PLS Path Modeling with R, Gaston Sanchez

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

REAL ANALYSIS

Course code: ECON-720 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION:

In this course, we extend the series of courses in Mathematics to Real Analysis which is aimed at learning concepts and techniques which are deemed necessary for advanced modeling in Economic Theory. In addition, the course is aimed at preparing students for understanding the articles which are published on top tier journals.

COURSE OBJECTIVES:

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

COURSE LEARNING OUTCOMES:

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

- UNDERSTAND how to use the concepts of Real Analysis in modelling Economic issues?
- EVALUATE the deviations from the existing models in economic theory?
- 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 Functions
- 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

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation

- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Wlater 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)

Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

DIVINE ECONOMICS FRAMEWORK

Course code: ECON-721 **Credit Hours: 03**

Contact Hours: 48

COURSE DESCRIPTION

COURSE OBJECTIVES

- To review and elaborate similarities and differences in conventional economics, Islamic Economics, Economics of Religion developed by western economists) and other heterodox economics.
- To understand and estimate multi-dimensional empirical interrelationships among non-economic factors [faith, spirituality, ethics, and values] and economic allocation decisions.
- To critically evaluate the contemporary economic theories and policies and suggest alternatives based on human nature

COURSE LEARNING OUTCOMES

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

- UNDERSTAND the fundamentals of Divine Economics.
- DIFFERENTIATE between Islamic Economics, conventional economics, and Economics of Religion developed by western economists
- IDENTIFY and ANALYZE economic as well as non-economic issues of economy in Divine perspective.
- EVALUATE the contemporary economics and find out gaps for future research. PhD scholars shall be able to develop new ideas, insights or doctrines in multidisciplinary manner.

COURSE CONTENTS:

1. Background

Introduction: Introduction to conventional economics, basic assumptions and implications, critical appraisal of conventional economics, the need for the "Divine Economics"

- Historical Perspective: Economy before "Economics".
- Credibility and consistency of conventional economic laws/theories.
- An overview of recent developments: The Islamic economics, Christian economics, social economics, human economics and neo-home economics, Brain-scan economics and New Economics.

2. The Divine Economics Framework

- The Point of Departure from convention: the concept of life after death
- The concept of rationality
- The two lives and the concept of life cycle in religious perspective

The concept of utility and expected stream of utility.

3. The Elements of the Framework;

- Core economics
- World Religions

- Conventional Economics, Islamic Economics, Economics of religions developed by Western economists, and other emerging paradigms.
- Knowledge of other sciences including Philosophy, psychology, sociology, medical sciences and ethics etc.
- Knowledge and understanding of nature [‘things as they are’; man not ‘economic man’]

4. The sources of Divine Economics

- Revelation, Tradition of Prophets [Sunnah], Observation, History, nature, intuition [Kashf/Ilhaam], Aql, wisdom of the wise]

5. **A General Divine Economics Model:**

- Assumptions of DE
- Recognizing both body and the soul and its implications for economy.
- The divine requirements of an economic behavior.
- Consumer problem, objective and constraint; and
- Econometric framework for resource allocation behavior under religiosity [Example: Econometric Model of Time allocation behavior].

6. The Empirical Testing of Divine Economics:

- Identifying and defining the socio-economic, demographic cultural, environmental, religious, spiritual and factors in economy
- Measurement scales and developing indices
- Developing research tools and conducting faith-based economic surveys.
- Use of qualitative data /mixed methods for faith-based economics

7. Issues in Divine Economics

Paradoxes

- Philosophical [Divinity and empirics]
- Testing Divinely hypotheses

Measuring Religiosity

- Unseen cannot be measured
- The categories of population according to religiosity.
- Developing the religiosity scales, problems and limitations of religiosity scales.

Interpreting the faith-based results:

- Statistical inference in a Faith-based framework
- Data visualization

- What if empirical results are against religious principles?
- What if the religious or economic school of thought have opposite interpretations? How to moderate?

8. Recent empirical findings

- Role of religiosity in Labor supply decisions, Religiosity and charity, leisure, voluntary work, religious activities, home production activities. Spirituality and economic behavior, Values and economic behavior, Divine Capital in economic performance, wellbeing researches.

TEACHING METHODOLOGY:

- Lectures
- In Class Activities
- Group Discussion
- Written Assignments
- Term Paper (optional)
- Guest Speaker (if required)

ASSESSMENT:

- Mid Term Evaluation: 50%
- Sessional Examination
- Quizzes
- Assignments
- In-Class Activities
- Class participation
- Final Examination: 50%

Note: The major share in mid-term evaluation will be of sessional examination. The share of mid-term evaluation and final examination can be 40:60 or 60:40, as approved by statutory bodies of university.

Suggested Readings:

- Syed Nisar Hussain Hamdani, Introduction to Divine Economics, Teacher's Course Manual, KIE, University of Azad Jammu & Kashmir
  - "Religious Orientation as a Factor in time Allocation", Ph.D. Dissertation, Quaid-e-Azam University Islamabad.
  - Towards Divine Economics, LWP Harvard University, 2008
  - Disaster, Faith & Rehabilitation, LWP Harvard University/University of AJ&K, 2007
  - Role of Values in Economy, Research Report of UAJK Project assisted by Higher Education Commission, available at www.divine-economics.org.
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Note: Further references will be suggested by the course teacher. The concerned teacher must supplement his lectures with latest development in this relevant subject/discipline. The concerned teacher must teach from the latest edition of the recommended books.

M. Phil thesis Dissertation

Course Code: THES-799 **Credit Hours: 06**