Course Contents for Subjects with Code: ECON

This document only contains details of courses having code ECON.
BS (4 Years) for Affiliated Colleges

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<th>Code</th>
<th>Subject Title</th>
<th>Cr. Hrs</th>
<th>Semester</th>
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<tbody>
<tr>
<td>ECON-101</td>
<td>Principles of Micro Economics</td>
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**Year**

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<th>Discipline</th>
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<tr>
<td>1</td>
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<tr>
<td>Business Administration, Economics</td>
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**Objectives**
The course is designed for the beginners with either no formal background or very little acquaintance with economics. The objective is to give the students with a clear understanding of the basic concepts, tools of analysis and terminologies used in microeconomics. Emphasis will be on the use of graphs, diagrams and numerical tables/schedules for exposition. The teacher is expected to draw examples from the surrounding world to clarify the concepts.

**Course Contents**

**Introduction**
An overview of the social system, Economy as integral part of the social system, Economic agents and economic problem, Economics as a science of choices between competing wants and limited resources, Classification of economics, Importance and scope of micro-economics, Basic concepts: Commodities, Income and Resources, Production and Consumption, Exchange and Distribution.

**The Price Mechanism**
The concept of a market economy, Laws of demand and supply, schedules & graphs of demand and supply, Market equilibrium and determination of price, Movement along and shifting of demand and supply curves, Concept of elasticity of demand and supply, Importance of elasticity.

**Consumer’s Behaviour**
Consumers/ house holds as economic agents, Problem of the consumers, The utility theory, Laws of diminishing marginal utility and equi-marginal utilities, Budget constraint and consumer’s equilibrium, Individual demand and market demand, Introduction to demand elasticity.

**Firms and Industries**
Business enterprises, Forms of business organization: Proprietorship, Partnership, Joint stock companies, Multi-national corporations, Classification of the firms, Production and supply of commodities (goods and services), Objectives of the firm: The profit motive, Output maximization and cost minimization, Industrial structure & market supply.

**Production and Cost Functions**
Production function, Primary inputs: factors of production, Secondary/intermediate inputs: Raw material and energy, The laws of returns, Revenues of the firm: total, average and marginal revenues, Cost function: Total, average and marginal costs, Short-run and Long-run costs, Equilibrium of the firm.
Market Structure
Classification of markets according to nature of commodity, extent, time and degree of competition, Perfect competition among buyers and sellers, Imperfect competition: Monopoly and Monoposony, Monopolistic competition, Price determination, The need for market regulation and role of the government, Public goods and their provision beyond the market.

Recommended Book
Objectives
The course is designed for the beginners with no formal background or little acquaintance with economics. The objective is to give the students with a clear understanding of the basic concepts, tools of analysis and terminologies used in macroeconomics. Emphasis will be on the use of graphs, diagrams and numerical tables/schedules for exposition. The teacher is expected to draw examples from the surrounding world to clarify the concepts.

Course Contents

Introduction
The economy in aggregate, Complexities of the world of business, Scope of macroeconomics, Brief account of the development of macro-economics after the World War-II, Concept of business cycles: Boom and Depression, Concepts of Inflation and Unemployment, Macroeconomic variables and their mutual relationship, Macro-models as abstraction from the real economy.

National Income
Definition and concept of national income, Measures of national income: Gross Domestic Product (GDP) and Gross National Product (GNP), GDP at factor cost and at market prices, Computation of national income: Product, Income and Expenditure approaches, Circular flow of income, Nominal versus Real income, Per capita income and the standard of living.

Components of Aggregate Demand
The Concept of Open and closed economy models, Concept of aggregate markets: Product, Money, Labor and Capital markets, Components of aggregate demand: Consumption, Investment and Government spending, Income and expenditure identities.

Money and Banking

Public Finance and Taxation
Sources of public revenue, Various forms of taxes: Direct and Indirect, Income and Commodity taxes, Sales, Excise, Customs, Non-tax revenues, Major heads of public expenditure, Revenue and Capital account, Concept of budget deficits and sources of filling the gaps, Deficit financing, Fiscal policy: meaning and objectives.

International Trade
Global distribution of resources, Concept of imports and exports, Theory of absolute and comparative advantage, Currency exchange rates, Balance of Payments: causes of
deficits in BOP of Pakistan and remedial measures, Custom Unions, The problem of external debt, Commercial Policy: objectives and scope.

**Recommended Books**

Introduction

Demand, Supply and Equilibrium
Concepts of demand and supply, Laws of demand and supply, Market equilibrium, Shifts in demand and supply curves, and market equilibrium.

Elasticity
Concept of elasticity, Price elasticity of demand, Income elasticity of demand, Cross Elasticity of Demand, Price elasticity of supply, Application of elasticity.

Utility Theory
Consumer behavior, Preferences, Utility function, Laws of Increasing and diminishing marginal utility, Law of Equi-marginal utility.

Theory of Firm
Factors of production and their rewards, Total, average, and marginal products, Laws of returns, Cost of production, Total, average, and marginal costs, Total, average, and marginal revenue. Concept of profit maximization/Cost minimization.

Market Structure
Perfect competition & imperfect competition: assumptions and Price/Output determination.

National Income
Concepts of national income, GDP & GNP, Real vs. nominal GNP, NNP, NI, PDY, Saving and Personal Consumption.

Macroeconomic Issues
Concept of inflation, unemployment, Balance of payment, Exchange rate and Business cycles. Monetary Policy and Fiscal Policy and their role in the economy.

Recommended Books:
Objective
The course is designed for the beginners with either low formal background or very little acquaintance with Economics. The objective is to give the students a clear understanding of the basic concepts, tools of analysis and terminologies used in economic theory on the theoretical side and to acquaint them with the economic problems being faced on national and international level on practical frontiers.

Course Contents
2. Utility, Relationship of Marginal and Total Utility, Scarcity, Good and Services Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility, indifference Curves and Consumers equilibrium (ordinal approach)
3. Demand, Law of Demand, Extension Contraction, Rise and fall of Demand and Elasticity of Demand
4. Supply, Law of Supply, Extension Contraction, Rise and fall of Supply and Elasticity of Supply
5. Market Equilibrium (Determination of Price)

Recommended Books:
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<tr>
<td>ECON-122</td>
<td>Basic Economics Lab-I</td>
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Year | Discipline
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1 | Statistics-III

Inflation, Un-employment, Growth and other Economics issues being faced during the time period of each semester (First, Second, Third & Forth) available on TV and print media
Objective
The course is designed for the beginners with either low formal background or very little acquaintance with Economics. The objective is to give the students a clear understanding of the basic concepts, tools of analysis and terminologies used in economic theory on the theoretical side and to acquaint them with the economic problems being faced on national and international level on practical frontiers.

Course Contents
2. Organization. Roll of Entrepreneur and Type of Organization.
5. Short Run Cost Curves and Long Run Cost Curves.
7. Short Run and Long Run Equilibrium of Firm and industry under Perfect Competition and Monopoly

Recommended Books:
Inflation, Un-employment, Growth and other Economics issues being faced during the time period of each semester (First, Second, Third & Forth) available on TV and print media

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<td>Basic Economics Lab-II</td>
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### Code | Subject Title | Cr. Hrs | Semester
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ECON-131 | Economics (Micro) for Commerce | 3 | II

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<td>Commerce</td>
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1. **Introduction**
   a. Nature and Scope of Economics
   b. Difference in Microeconomics & Macroeconomics

2. **Consumer Behavior:**
   a. Utility-kinds and aspects.
   b. Cardinal and ordinal approaches of utility.
   c. Laws of diminishing and Equi-marginal utility.
   d. Indifference curve analysis and consumer equilibrium.
   e. Price effect, income effect and substitution effect.

3. **Demand, Supply and Price Determination**
   a. Demand- Determinants of demand, law of demand, shifts and shift factors in demand
   b. Elasticity of demand, Price, income and cross elasticity, Point and Arc Elasticity
   c. Measurement of elasticity of demand: Percentage, Graphic and Total Outlay methods
   d. Determinants and importance of elasticity of demand.
   e. Stocks and supply. Determinants of supply, law of supply, shifts & shift factors in supply.
   f. Elasticity of supply, Measurement & Determinants of elasticity of supply.
   g. Market equilibrium-surplus and shortage conditions.
   h. Consumer and Producers surplus.

4. **Production & Cost**
   a. Production function, Economies of Scale
   b. Laws of Return and Law of Variable proportions
   c. Traditional theory of Costs, Average, Marginal and Total Costs
   d. Long run Average Cost

5. **Market Structures**
   a. Perfect Competition: Price and output determination in the short and long run
   b. Monopoly: Price and output determination in the short and long run, Price discrimination
   c. Monopolistic Competition: Price and output determination in the short and long run
   d. Introduction to Oligopoly

6. **Factor Pricing**
   a. Marginal productivity theory
   b. Recardian theory of rent

7. **Mathematics for microeconomics**
   a. Derivative and their application in microeconomics
   b. Introduction to optimization

**Recommended Books:**
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<tr>
<td>ECON-201</td>
<td>Intermediate Micro Economics</td>
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**Year**

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**Objectives**
The objective of the course is to clarify and extend further the microeconomic concepts and to develop analytical skills and solving petty problems. In addition to diagrammatic approach, the students ought to get accustomed to simple mathematics and numerical tools. The teacher is expected to draw examples from surroundings for exposition. The students may be given assignments to collect information from the markets and to analyze the data. They may have tours to the industrial units and to observe the process of production and problems in supply and demand.

**Course Contents**

**Introduction**
Scope of Microeconomics and areas of its concern, Economic agents and decision making, Brief account of the Theory of Value, The relationship between production and consumption, The role of markets and importance of price signals in efficient allocation of resources, Economic models as abstraction from the reality, Introduction to mathematical functions used in economics: Utility, Demand, Supply and Production functions etc.

**Theory of Consumer Behavior**

**Demand & Elasticity**
Derivation of demand functions using indifference curves, Ordinary and Compensated demand functions, Engel’s law and classification of goods, Market demand as horizontal summation of individual demands, Elasticity of demand, Importance and types: Own-Price, Cross-Price and Income elasticity, Relationships among different demand elasticities.

**Production Functions**
Definition, classification and problems of firms, Production and value- added functions, Fixed and variable-coefficient functions, Some commonly used production functions: Cobb Douglas and CES etc., Average and marginal products of variable factors and their inter- relationship, Iso-quant maps, Marginal rate of (technical) substitution (MRTS), The cost line and equilibrium of the firm, Output maximization subject to given cost/budget, Demand for variable factors, Elasticity of substitution, Returns to scales and Economies of...
scales.

**Cost of Production**
Types of costs: Economic and Accounting costs, Opportunity costs, Fixed and Sunk costs, Total and variable costs, average and marginal costs, Short-run and Long-run cost functions, Decreasing, Constant and Increasing cost industries, Cost minimization subject to given/pre-determined level of output, Input cost and demand for factors of production.

**Behaviour of the Firm**
Profit maximization (loss minimization) as the sole objective of all firms, Equilibrium of the firm when it faces the market, Total, Average and Marginal Revenues, Equality of marginal revenue and marginal costs, Economic profit and rent, Short-run and Long-run position of a price taking and price seeking firm, The controversy over the profit maximization hypothesis.

**Market Structure and Price Determination**
(i) **The Perfectly Competitive Market**
Assumptions of the model, Pure and Perfect Competition, Short-run and Long-run equilibrium of competitive firms, Supply functions in the short and long-run, Constant-cost and increasing-cost industries, Derivation of equilibrium Prices and Quantity using simple equations.

(ii) **Monopoly and Monopsony**
The market power of a firm, Sources of monopoly power: why do monopolies exist, Decreasing-cost industries and natural monopolies, Comparison between monopoly and monopsony, Short-run and Long-run Equilibrium of a firm with monopoly power, Price discrimination, Bi-lateral monopoly, Multi-plant monopoly, The social costs of monopolies, Public utilities and marginal cost pricing, Market regulation and anti-trust policies, Market equilibrium with monopoly power.

(iii) **Monopolistic Competition and Oligopoly**
Characteristics of monopolistic competition, Short-run and Long-run equilibrium, The basic theories of monopolistic competition, Comparison with pure competition & monopoly, The role of advertisement and media, Models of non-collusive Oligopoly: Cournot, Bertrand, Chamberlain, Sweezy etc. Price leadership and cartel formation.

**Pricing of the Factors of Production**
Derived Demand for Variable Inputs, The marginal productivity theory and its criticism, Modern theory of factor demand with emphasis on the labour and capital markets, The labour supply function, Wage determination and the role of government and labour unions, Input price elasticity, Pricing of factors that are fixed in the short-run: Rents & Quasi- rents, Stock prices.

**Recommended Books**
BS (4 Years) for Affiliated Colleges


1. **Scope and New Developments**

Definitions: Economic Development and Growth, Identification of Development variables. Scope and Significance of Development Economics. Characteristics of LDC’s. Measurement of Economic Development and Growth. Per Capita Income approach, Quality of Life Index / HDI etc. Historical overview of world development and emerging major issues pertaining to Less Developed Countries (LDC’s). Why the whole world is not developed?

2. **Major Theories of Development**


3. **Agriculture and Industry**


4. **Population, Education and Human Capital**


5. **International Debt, Aid/Assistance**


6. **WTO, Liberalization and International Trade**


7. **Poverty and Income Distribution**

Definitions and Measurement of Poverty/Poverty Line. Poverty concepts/definitions. Absolute Poverty, Relative Poverty, Income approach, Expenditure approach, Basic needs...

8. Economic Growth and Environment

Recommended Books:
11. -------------- (1999), A Profile of Poverty In Pakistan, (In Collaboration with UNDP).
15. UNDP, Human Development Reports , Annual Reports.
1. Introduction

The circular flow of National Income, GDP and GNP, Measurement of GNP: Expenditure (demand), Product (supply) and Income (factor rewards) approach, Value added at factor cost and market prices, Personal and disposable income, Per capita income, GNP as measure of welfare, Injections into and Leakages from the economy: Saving and Investment, Exports and Imports, Domestic Absorption, Nominal and Real income, The GDP deflator, Problems in computation of national income, The underground economy, Components of Aggregate Demand: The closed and open economy models.

3. Theories of Consumption
Consumption as a function of income, Theories of Consumption: The Absolute income, Relative income, Permanent income and Life-cycle income hypotheses, Kuznet’s findings and Reconciliation of Marginal and Average Propensity to Consume.

4. Saving and Investment
Definition of Investment, Real and Financial investment, Autonomous and Induced investment, Determinants of investment: The Present Value, IRR and benefit-cost ratio Criteria, Investment Demand and capital formation, Tobin’s Q-Theory, Lags in Investment Demand, Volatility of Investment, Investment by the Public sector, Equilibrium in the goods market, Derivation of IS curve (graphic), Factors affecting the position and slope of the IS curve, The Saving-Investment gap in developing countries.

5. The Demand for and Supply of Money
The demand for money, The Quantity Theory of money, The Liquidity Preference/ Portfolio Balance Approach, The supply of money: M1, M2, M3 concepts, The money supply multiplier and the role of banking system, Instruments of credit control and the role of central bank, Equilibrium of the money market, Derivation of LM Curve (graphic), Factors affecting the position and slope of the LM curve.

6. Determination of National Income
The Keynesian model for a simple two-sector economy, inflationary and deflationary gaps, The concepts of multiplier, Interaction of the IS and LM functions and derivation of the aggregate demand function, The impact of changes in public expenditure, taxation and money supply on aggregate demand and the rate of interest.

7. Aggregate Supply and the Labour Market
8. **Inflation and Unemployment**

Types, causes and measurement of inflation, The structural and monetary approaches to inflation, Global inflation and its impacts on developing economies, Transitory and structural unemployment, The problem of unemployment with special reference to Pakistan, The relationship between inflation and unemployment, Phillips curve in the short-run and long-run, Remedial measures to combat inflation and unemployment.

**Recommended Books:**

**Code** | **Subject Title** | **Cr. Hrs** | **Semester**  
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ECON-204 | Agriculture Economics | 3 | IV

**Year** | **Discipline**  
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2 | Economics

1. **Introduction and Importance of Agriculture**
   Agricultural Revolution, Importance of Agriculture, Food Safety, Agriculture vs. Industrial development Debate. Current State of Agricultural Development. Brief Overview of Sources of Growth. Introduction to issues in Agriculture etc.

2. **Structure and Characteristics of Agriculture in LDCs**

3. **Role of Agriculture in Economic Development**

4. **Theory of Rent and the Concept of ‘Surplus’**

5. **Agriculture in Dualistic Development Models**

6. **Resource Use Efficiency and Technical Change in Peasant Agriculture.**

7. **Supply Response**

8. **Population and Food Supplies**
Recommended Books:
### Objective

The course is designed for the beginners with either low formal background or very little acquaintance with Economics. The objective is to give the students a clear understanding of the basic concepts, tools of analysis and terminologies used in economic theory on the theoretical side and to acquaint them with the economic problems being faced on national and international level on practical frontiers.

### Course Contents

2. Determination of National Income and Employment
   a. The classical theory of Employment
   b. Keynesian Theory of Income and Employment with the help of Aggregate demand - Aggregate Supply Approach and Saving -investment Approach

### Recommended Books:

### BS (4 Years) for Affiliated Colleges

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<td>ECON-222</td>
<td>Basic Economics Lab-III</td>
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Inflation, Unemployment, Growth and Other Economics Issues being faced during the time-period of each semester (First, Second, Third & Forth) available on TV and print media.
Objective
The course is designed for the beginners with either low formal background or very little acquaintance with Economics. The objective is to give the students a clear understanding of the basic concepts, tools of analysis and terminologies used in economic theory on the theoretical side and to acquaint them with the economic problems being faced on national and international level on practical frontiers.

Course Contents
1. Balance of Trade and Balance of Payments, Disequilibrium in balance of payments, Relative importance of Agriculture and industrial Sector in Economic
2. Development of Pakistan, Need an role of Economic Planning
3. The Need and Roll of Manpower planning

Recommended Books:
Inflation, Un-employment, Growth and Other Economics Issues being faced during the time period of each semester (First, Second, Third & Forth) available on TV and print media.
Introduction to Macroeconomics

1. **National Income Accounting**
   a. Circular flow of income
   b. Concepts and Measurement of National Income
   c. Difficulties and importance of National income accounting

2. **Keynesian Macroeconomics**
   a. Consumption function, Fundamental Psychological law, Saving function, MPC, APC, MPS & APS
   b. Keynesian theory of investment & MEC
   c. Keynesian theory of income and employment, Inflationary and deflationary gap
   d. Taxation, Canons of taxation, types of taxes
   e. Fiscal policy; its objectives and tools

3. **International Trade**
   a. Theory of absolute and comparative advantages
   b. Heckscher-Ohlin Modern theory of Trade

4. **International Institutions**
   a. The World Bank
   b. IMF
   c. WTO

**Recommended Books:**
ECON-232 Economics of Pakistan 3 IV

Year Discipline
2 Commerce

1. Introduction to the economy of Pakistan
2. Review of Economic Development in Pakistan
   a. Economic growth and development
   b. Characteristics of developed and developing countries
   c. Characteristics of Pakistan’s Economy
3. Economic resources of Pakistan: Mineral, Power, Water and Human Resources
4. Agricultural Sector: Main products, Review of past performance, Agricultural price policy, Agricultural Credit, Agricultural Marketing
5. Industrial Sector: Past performance and present status, Industrial development in Pakistan, Cottage and small scale industry
6. Services Sector: Past performance and present status, Banking sector, Transport and communication
7. Fiscal and Monetary Policy in Pakistan
8. International Trade: Past performance and present status, Pakistan’s Export performance, Pakistan’s Balance of Payments, Pakistan’s trade partners
10. Economic Planning: Review of Pakistan’s five year plans, Analysis of the latest Federal Budget
11. International institutions: Pakistan’s relations with IMF, World Bank arid WTO
12. Current Issues: Kalabagh Darn, Thar Coal Project, Balochistan’s Reko-Diq Mines

Recommended Books:
3. Saeed, Kh. Amjad “Economy of Pakistan”,
5. Akbar Zaidi, Issues in Pakistan Economy.
7. Anjum Nasim, Financing the Development Priorities of Pakistan in 1990’s
10. State Bank of Pakistan, Quarterly and Annual Reports.
Objectives
The course is designed for senior undergraduates. The objective is to confront them to advanced theoretical concepts and rigorous analysis with mathematical tools at hand. They have to develop the analytical skills and to enhance the capabilities to solve somewhat complicated problems. As usual, the teacher is expected to draw examples from the surrounding world for exposition.

The students may be given frequent assignments and exercises from the texts, which may be discussed by the teacher in the class after submission. The students should be motivated to use computer for solving the assignments.

Course Contents
The Theory of Consumption and Demand
Axioms of Rational Behaviour, The utility function and budget line, Constrained optimization and the Lagrange function, Utility maximization and ordinary (Marshallian) demand functions, Cost minimization and compensated (Hicksian) demand functions, The inter-relationship between ordinary and compensated demands, The indirect utility function and expenditure function, Homogeneity of demand functions, Elasticity of Demand, Engel’s Law and income elasticity, Impact of a price change on demand, Bifurcation of the price effect into income and substitution effects, The Slutsky Equation: derivation and interpretation, Gross and net substitutes, Classification of goods: Normal, Inferior and Giffen goods, Clarification of the concepts by using Cobb-Douglas and CES utility functions.

The Theory of Production and Supply
The Production function: components, different forms, Properties of Cobb-Douglas and CES production functions, The iso-quant and its slope, The marginal rate of technical substitution, Diminishing MRTS and convexity of iso-quant, The cost function in relation to production function, Relationship between Average and Marginal cost functions, The short-run marginal cost and supply function, Relationship between the short-run and long-run average cost functions, Relationship between marginal revenue and marginal cost functions, Equilibrium of the firm in the short and long run, Demand for variable factors, Expansion path and returns to scales, Elasticity of substitution, The role of technical progress and shifting of production function overtime.

Market Structures and Price Determination
Critical appraisal of the competitive market assumptions, Efficiency of competitive market, Factors responsible for shifting of demand and supply functions overtime and impact on price, Govt. intervention in the market: price and quantity restriction and impact of taxation on price and consumer’s surplus, The imperfect competition: Monopoly and Monopsony, Duopololy and Oligopoly, Monopolistic competition, The economic cost of imperfect competition, Elasticity of demand and Lerner index of market power, The case of public utilities and marginal cost pricing, Natural monopolies and the global markets, The multinational corporations, Introduction to: Game theory and strategic behaviour, Market with uncertainty and imperfect information.
Recommended Books

- Henderson & Quandt - Microeconomic Theory: A Mathematical Approach-
- Silberberg, E. & Suen, W.- The Structure of Economics: A Mathematical Analysis-
Objectives
The course is designed to enable the students derive relationships between economic variables from the available data. The students should be in a position to apply statistical methods to data via simple mathematical models and to interpret the results by using economic theory. The students are encouraged to learn the use of simple computer programs and econometric packages in handling data and to understand the print outs. The teacher should expose the students to the use of computer in solving simple econometric problems and assignments.

Course Contents
Introduction
Definition and scope of Econometrics, Economic theory as the basis for empirical analysis, Mathematical and Econometric models, Application of Statistical techniques to Economic data, Ingredients of Econometric modeling: Specification, Estimation, Evaluation and Forecasting.

The Classical Linear Regression Model (CLRM)
(a) The Simple Two-Variables Model
Variables and parameters, Meaning of the explained and explanatory variables, Estimators and estimates, Correlation and Regression theory, Mathematical versus econometric model, Structure of the linear econometric model with two explanatory variables, Rationale for inclusion of the disturbance term, Assumptions of the model with special reference to the disturbance term, The least squares principle, BLUE properties of the OLS estimators, The estimation procedure, The economic interpretation of the estimated coefficients, Hypothesis testing and the use of Z, t, F, test statistics, The confidence interval and tests of significance approaches, The ANOVA technique, The explanatory power of the model, Coefficient of determination vs. correlation coefficient: comparing regression and correlation theory, Econometric forecasting and confidence interval for the dependent variable against future value of the independent variable, Important features of a good forecast, Extensions of the model: Time as explanatory variable, Dummy variables, Estimation through the origin.

(b) The Multiple Linear Regression Model (MLRM)
The general format of MLR model, Assumptions of model with special reference to independence of the explanatory variable, Estimation of model with 3-4 explanatory variables using the OLS procedure, Interpretation of the estimated coefficients, Computation of elasticities, The degree of freedom and adjusted $R^2$, The explanatory power of the model and ‘Goodness of Fit’, Hypothesis testing in MLR, Overall significance of the regression and the use of F-statistics, Economic theory and econometric modeling.

Deviation from the Classical Assumptions
Assumptions of the classical model and economic reality, Relaxation of the assumptions and estimation issues, Brief introduction to the nature of problems and alternatives.
(i) **Multicollinearity**  
Linear relationship between any two explanatory variables, Nature and severity of the problem, Distinction between perfect and partial Multicollinearity, Properties of OLS estimators in the presence of collinearity, Detection of the problem and remedial measures.

(ii) **Heteroskedasticity**  
Meaning of Heteroskedasticity, The nature of the problem with reference to economic theory, Cross-section data and the problem of non-constant variances, Consequences for OLS estimators, Detection of the problem and remedial measures in brief, Introduction to the Generalized Least-Squares model (GLS).

(iii) **Autocorrelation**  
Autocorrelation and its causes, Time-series data and emergence of the problem with reference to economic theory, The AR(1) process, Consequences of Autocorrelation for OLS estimators, Detection of the problem and remedial measures in brief.

**The Simultaneous Equations Models**  

**Recommended Books**
- Oxford University Press.
Objectives
The course is designed to enable the students use mathematical tools in clarifying their economic concepts and solving problems. This is because economic analysis requires extensive use of mathematics in the present day world of complexity. Mere logical reasoning and diagrammatic approach is perhaps not sufficient. This is true for positive economics in particular. As such, the students of economics have to learn and apply mathematics along side their theoretical underpinnings.

Homework: The students may be given assignments and exercises from the texts and weekly or fortnight class tests including MCQ's and confronted to extensive practice.

Course Contents
The Nature of Mathematical Economics
Pure and applied mathematics, The use of mathematical tools in social sciences, particularly in economics, Economic theory (logical argument) as description of some kind of relationship between variables, Mathematical Support: Expression of theory in functional form, Explaining properties of economic parameters like elasticity, propensity to consume etc., Verification of hypotheses and the use of mathematical models, Parameters and variables (dependent and independent), Linear and non-linear functions: quadratic, polynomial, circular, Types of functions: constant, rational, non-algebraic, logarithms & exponential, Rules of logarithms and exponents, Functions of more than two independent variables, Graphs of various functions, The importance and limitations of mathematical models.

Equilibrium Analysis
Equation of a straight line: Intercept and Slope parameters and their economic interpretation, Partial and general equilibrium analysis, Single and Simultaneous equation models, Examples from market models: Demand and supply equations, Determination of price and quantity, Calculation of elasticities at equilibrium, The effect of an excise tax on market equilibrium, National Income determination: Closed economy with goods and money markets.

Linear Models and Matrix Algebra

Differentiation
The concept of derivations, Functions of one variable and rules of differentiation: Sum-difference, product and quotient rules, chain rule, power function rule, inverse function rule, Implicit functions rule, Combinations of rules, differentiation of logarithmic & exponential functions, Higher order derivatives, Concept of maxima & minima, First and second
derivative tests, point of inflection, Free and Constrained optimization, Partial
differentiation & its rules, Hessian and Jacobian determinants, Higher order & cross partial
derivatives (Young’s theorem), Total differentials & total derivatives, Optimizing cubic
functions.

**Economic Applications of Differential Calculus**
Analysis of Utility, Demand, Production, Cost and Supply functions, Lagrange function:
Profit maximization and cost minimization under perfect competition and monopoly,
Maximizing excise tax revenue in monopolistic competitive market, Comparative static
analysis: Partial equilibrium market model, National Income model, Partial and Substitution
elasticities, Optimization of unconstrained functions and their economic applications, Profit
maximization by a multi-product and multi-plant firms, Price discrimination and monopoly,
Optimization by using Cobb-Douglas, CES and Translog functions with interpretation of the
results.

**Linear Programming**
Ingredients of linear Programming, Graphical approach, Simplex method, Economic
application of linear programming, Concept of primal & dual, Duality theorems, Solving of
Primal via dual, Economic interpretation of a dual.

**Recommended Books**
- Chiang, A. C. - Fundamental Methods of Mathematical Economics – 3rd Edition
- Frank, Budnick - Applied Mathematics for Business, Economics and Social
- George, Alvery et al – Essentials of Mathematics with Business Applications-
- Weber E. Jean - Mathematical Analysis: Business and Economic Applications-
- Colin, Glass – An Introduction to Mathematical Methods in Economics- (Latest
### General Equilibrium and Welfare Economics

The concept of efficiency and welfare, Conditions of allocative efficiency: consumption, production and product mix, Theorems of optimality/welfare, The efficiency of competitive market system, Equity and efficiency trade off, Partial versus general equilibrium, The pure exchange economy, Two sector economy (consumption and production), Diagrammatic approach: The Edgeworth Box, Production possibility frontier and Social indifference curve, Introduction to computation of general equilibrium in a 2x2x2 (two consumers, two sectors/commodities, two factors) economy.

### Recommended Books

Course Contents

Importance of Labor Economics

Labor Markets Analysis: Demand for Labor

Labor Market: Supply of Labor and Wages

Wages, Unemployment and Inflation

Labor Market Discrimination
Discrimination in Labor Market: Gender, Race and Ethnicity. Efficiency Wage Theories and Coordination Failure.

Labor Market Information System

Theories of Labor Movements


Recommended Books
- Bruce, Kaufman; e. Kaufman, Julie L; Hotchkiss, (2002), Economics of Labour Markets, Thomson Publisher.
- Reynolds, Labor Economics and Labor Relations.
### Objectives
The course is designed for senior level undergraduate students. The objective is to enhance their analytical skills and to clarify further their macroeconomic concepts with quantitative tools at hand. They must have a strong theoretical foundation so as to understand the real problems of the economy with particular emphasis on inflation, unemployment, instability, deficit and debt etc. to which the developing countries are confronted at present.

### Homework
The students may be given frequent assignments and exercises from the texts, Economic Survey, reports of the State Bank as well as from articles appearing in the press. The students should be motivated to use computer for solving the assignments.

### Course Contents

**Macroeconomics: The Classical Framework**

**The Demand Management Economy**
The Keynesian framework, Characteristics of a depression economy, Innovations due to Keynes: The consumption function, The liquidity preference function, Wage rigidity in the labour market, The ISLM model, Mathematical derivation of the IS and LM functions, The interaction of the goods and money markets in a closed economy, The role of public sector investment, The multiplier effects of fiscal and monetary actions, Derivation of the aggregate demand curve/function, Stabilization and the relative effectiveness of fiscal and monetary policies, The Neoclassical critique of the Keynesian model: the Keynes effect, the Pigou effect, the Real Balances effect, The Keynesian-Neoclassical Synthesis.

**The Supply Side Economics**
Demand for and Supply of Labour, The wage rate determination, Rigidity versus flexibility of nominal wage rate, The short-run Production function, Derivation of Aggregate Supply under the Classical and Keynesian assumptions, The notions of full-employment and under-employment, Scarcity of raw material and energy, The supply side disturbances leading to stagflation, The problems of developing countries: shortage of supply vs. deficiency of demand, The scope for structural changes (instead of fine tuning) in developing economies.

**The Open Economy Macroeconomics**

**Macroeconomic Policy Debate**
Policy Actions: Active or Passive, Ignorance, Expectations and the Lucas Critique, Conduct of Policy: Formula/Rule vs. Discretion, Distrust of Policy makers and Political Process, Macroeconomics Policy: the Fiscal, Monetary and Commercial policies, Policy formulation...

**Growth and Business Cycles**
The accumulation of capital, Acceleration principle and the concept of steady state growth path, The steady state conditions, The basic Neoclassical (Solow) growth model, Golden rule for consumption and investment (capital accumulation), The role of technical progress in growth, Introduction to the theory of Real Business Cycles: Interpretation, Labor market, Technology shocks, Household Behaviour, the persistence of output Fluctuations, Limitations of the Model.

**Recommended Books**
- Prentice Hall
- Scarth, William,M – Macroeconomics: An Introduction to Advanced methods-
Objectives
The course is designed for senior undergraduates more inclined towards quantitative studies. The objective is to enable the students dive deep into complex problems of the real world economic life. They have to understand data problems, to have good grasp over advanced estimation techniques and to have the capability of inferring results accurately. The students have to learn certain computer packages like SPSS, E-views and Strata besides Excel. Laboratory work: The students are required to devote at least one hour per week to computer laboratory. They have to develop the capacity to read and understand papers that appear in research journals.

Course Contents
Overview of the Classical Regression Model
The multiple regression (K-variable) model in matrix format, Assumptions of the model, The Least-Squares estimation procedure in matrix notation, Properties of the OLS estimators, Interpretation of the Beta coefficients (β₁, β₂,…., βₖ), Hypothesis testing using matrix approach, Forecasting in OLS model, Time as an explanatory variable, Regression on Dummy variables, Dummy variable trap, Chow test, Specification bias and Errors in variables, Estimation with endogenous lagged variables, Restricted Least Squares.

The Generalized Least-Squares Model

The Maximum Likelihood Estimators
The likelihood function, Properties of ML estimators: consistency, Asymptotic normality, efficiency, Comparison with OLS estimators, Instrumental variable (IV) estimators

Time Series Analysis
Rationale for univariate analysis, ARMA and ARIMA Models, Comparison of forecast based on ARIMA and regression models, Stationarity, Unit roots, co-integration and error correction models, Introduction to Autoregressive Distributed Lag models, ARCH models

Recommended Books
• Judge, George G. et al - The Theory and Practice of Econometrics- (1988)
• John Willey and Sons.
• Maddala, G.S. & Kim –Unit Roots, Co-integration and Structural Change -(1998)
Objectives
Objectives: The course is designed for senior undergraduates more interested in quantitative economics. The objective is to confront the students to advanced mathematical techniques so as to enable them handle economic models, interpret the results and solve complex problems. The students may be given assignments and exercises from the texts and weekly or fortnight class tests and quizzes including MCQ's.

Course Contents
Complex Number and Circular Functions
Imaginary and Complex Numbers, Complex Roots, Circular Functions, Properties of Sine & Cosine functions, Euler and Maclaurin series, Alternative representation of Complex Numbers.

Integral Calculus

Differential Equations
(i) First Order Linear Differential Equations
Meaning and Definition; Homogenous & non-Homogenous cases, Solution of first order linear differential equations: with constant coefficient & constant term, with variable coefficient and variable terms, Qualitative approach: Concept of phase diagrams, types of time paths and the dynamic stability of equilibrium, Exact differential equations: Solution and Verification, Non-linear differential equations of the first order and first degree, Bernoulli Equation, Separable Variables, Economic Application: Dynamics of market models, Solow growth model.

(ii) Higher Order Differential Equations

Difference Equations
(i) First Order Difference Equations
Meaning and definition, First order linear difference equations: Solution and verification of results, Conditions for dynamic stability of equilibrium, Types of time paths, Economic applications: The Cobweb model, Market model with inventory, Model with price ceiling, Nonlinear difference equations, The qualitative/graphic approach and phase diagrams.
(ii) Higher Order Difference Equations

Non-Linear Programming

Recommended Books
- North Holland Publishing Company
Course Contents

Recommended Books
<table>
<thead>
<tr>
<th>Code</th>
<th>Subject Title</th>
<th>Cr. Hrs</th>
<th>Semester</th>
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</thead>
<tbody>
<tr>
<td>ECON-310</td>
<td>Major Issues in Pakistan Economy</td>
<td>3</td>
<td>VI</td>
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</tbody>
</table>

**Overview of Pakistan Economy**


**Development Planning and Resource Mobilization**


**Agriculture and Industrial Development: Emerging Issues**


**Sectoral Development, Employment Pattern and Unemployment**


**International Debt and Dependency**


**Poverty and Income Distribution**


**Inflation, Foreign Trade Deficit and Emerging Issues**


**Recommended Books**

- Human Development In South Asia, Annual Report.
- World Development Reports, World Bank.
BS (4 Years) for Affiliated Colleges

<table>
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<tr>
<td>ECON-401</td>
<td>International Trade Theory</td>
<td>3</td>
<td>VII</td>
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</table>

**Objectives**

To teach the theories of I Trade to interrelate other branches of economics

**Course Contents**

**Importance and Bases of Trade**


**Growth and Trade**


**Technology and Factor Endowment**


**Factor Endowment and Heckscher –Ohlin Theory**


**Markets, Cartels and International Trade**

Monopoly and Import Competition, Export Opportunities. Product Differentiation and Monopolistic Competition. Dumping / Discrimination and WTO, Competitiveness and Market
Share, Gains from Migration. WTO and Factor’s Movements and the Commodity Movement. Multinationals Firms and Foreign Direct Investment, Transfer of Capital, Technology, Skill and other Gains, Transfer of Resources and Transfer Problem.

Tariff, Quota, Trade Policies and WTO


Major Contemporary International Economic Issues:


Recommended Books

BS (4 Years) for Affiliated Colleges

<table>
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<th>Cr. Hrs</th>
<th>Semester</th>
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</thead>
<tbody>
<tr>
<td>ECON 402</td>
<td>Research Methodology</td>
<td>3</td>
<td>VII</td>
</tr>
</tbody>
</table>

Year  Discipline  4  Economics

Course Contents


Recommended Books

- Kidder Louise H., Research Methods in Social Relations.
- Neuman W. Lawrence, (1997) Social Research Methods, Qualitative and Quantitative
Approaches, Allyn and Bacon; Boston.

- Sekaran Business Research Methods
**Course Contents**

**Introduction and Role of Public Sector**


**The Theory of Public Goods**


**Public Revenue and Taxes**


**The Theory of Public Goods**


**Distributional Equity in Taxation**

The Ability to pay and Economic benefits (received), Cannons of Taxation, The Optional Income Tax Approach: Optimum Tax and Revenue Collection.

**Tax Structure of Pakistan**

Fiscal Policy: Public Expenditure and Budget

Fiscal Relations

Recommended Books
- Chellieah R.J. (Latest eds.), Fiscal Policy in Less Developed countries.
Course Contents

Introduction

Introduction: Importance of Economic History: Approaches to Study the Subject. Overview of Ancient Greek, Roman and Medieval Economic Thought. Overview of Ancient and Medieval thoughts; Quensey’s influential ideas, Feudalism, Mercantilism, Nature’s Circular Flow, Process of modern theories and thoughts. Overview of Islamic thoughts: Ibne-Khuldoon and thereafter. Overview of Silent Features of Muslim School of Thought

Mercantilists and the Physiocrats

The Contributions of Mercantilists and the Physiocrats. A doctrine of economic process, transition to liberalization: Wage theory to natural price, the task of government. Overtime, Changing Role of Government.

Classical School


Socialism


Keynesian and Post Keynesian School


i) The Emergence of Modern Economic Growth, Building Blocks, Industrial Revolution, Structuralist and Dependency School of thought; Sunkel, Amir Samer, Frank and others’ contribution. Technological Change and Impacts.


**Recommended Books**

- Rima Ingrid, Development of Economic Analysis, Routledge Publishers (Latest Ed.).
Course Contents


Role of Money in the Economy


Demand for Money


The Money Supply Process


Money & Interest Rates


Money and Inflation


Monetary Policy in International Framework


Recommended Books

Course Contents

**Introduction to Windows 2000 and Ms-Word**

**Power Point and MS-Access (XP)**
Database Concepts, File Linkages, Data Retrieval, Data Editing / Updating. Data Transferring.

**SPSS and E-View**

**Estimation of Production Function**
Use of Computer, SPSS, E-View to Estimate Production Functions. Cob-Douglas Production Function, Constant Elasticity Production Function etc.

**Computer Applications: Demand – Supply & Equilibrium**
Estimation of Demand and Supply using E-View/SPSS. Aggregate Demand – Aggregate Supply and Equilibrium.

**Model Building and Estimation**

**Project Appraisal and Computer Application**

**Econometric Analysis and Computer Applications**
Recommended Books

- E-View Manual, (Learning help available with package (software)).
- SPSS-Manual
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>ECON 407</td>
<td>Islamic/Ethics Economics</td>
<td>3</td>
<td>VIII</td>
</tr>
</tbody>
</table>

**Objectives**

The course is designed for senior students having gone through some basic courses in economic theory and development economics. The objective is to let them realize that Islam provides full guidance to its followers in all spheres of social life. The students have to understand the Islamic injunctions ordained for economic behaviour, both in the individual as well as collective capacity. They have to compare the prevailing system with that devised by Islam, to capture the socio-economic problems faced by the present day Muslim countries and to find ways and means to reconstruct the system in vogue according to Islamic guidelines so as to achieve greater stability, equity in distribution and reduction in poverty as the primary goals of all developing nations.

**Course Contents**

**Introduction**


**Islamic Economic Thought**


**Microeconomics in Islamic Framework a. Consumer’s Behaviour**

Objectives, Success in this world and the life Hereafter, Moderation in consumption, restricted set of preferences, altruism and charitable donations (Zakah and Sadaqat), Utility function, Consumer’s equilibrium in an Islamic framework.

**b. Behaviour of the Firm**

Business Ethics in production and marketing, Permissible and prohibited activities, Hoarding and gains, Forms of business organization: Proprietorship, Partnership (Muzara’h, Mudharbah, Musharakah), Joint Stock Company (Sharikah), Modes of investment and financing.

**c. Market structure**

The concept of fair trade, Resource allocation under Islamic environment, Emphasis on competition, The case of monopolies and cartels in an Islamic system, Behaviour of the retailers, stock holders and whole-sellers, Types of transactions (Bai Fasid, Bai Slalm, Bai Muajjal,
Macroeconomics in Islamic Framework

a. Some Basic Macroeconomic Concepts
Consumption, saving and investment functions, Determinants of consumption and Investment functions in Islamic environment, Concept of helping others, The parameters of Publics pending in Islamic framework, International trade relations, Inflation and unemployment, Stabilization policies in Islamic framework.

b. Money and Banking
Commodity money, Paper money and Credit money, The concept of Riba (interest): its interpretation and implications, Justification of interest in the conventional theory, Rationale for prohibition of interest-based transactions and gambling, Models of interest-free Commercial Banking, Modes of financing investment: leasing (Ijarah), partnership in capital (Musharka), principal-agent Murabaha, Bai-Salam, Bai Muajjal etc., Central Banking and monetary policy in Islamic framework: Combating inflation, Design of capital markets and Insurance.

c. Public Finance and Fiscal Policy
Sources of revenue and heads of expenditure of an Islamic State, the scope for taxation, Objectives of fiscal policy: Social justice, Equity in distribution and elimination of poverty, Beneficiaries of Zakat, Exemption limits and rates of Zakah, Economic impacts of Zakah & Usher: the multiplier effect, Financing economic growth and development in Islamic perspective, The case of domestic and foreign borrowing,

Islamic Economic System

Islamization Process in Pakistan
Islamization of the banking and financial system: Reports of the CII and implementation issues, The role of financial institutions in the private sector, Implementation of Zakah and Usher system: Prospects and Problems, A brief survey of changes that have taken place in economic and financial structure since 1980’s, Islamic Banking practice and the role of the State Bank of Pakistan, The process of Islamization in other countries like Iran, Sudan, Malaysia.

Recommended Books
• Chapra, M. Umer–Just Monetary System–(1993)–IIIT New York and Islamic Research Institute, IIU Islamabad.
• Khan, M. Fahim – (1983) – Macro Consumption Function in an Islamic Economic Framework-International Centre for Research In Islamic Economics, King Abdul Aziz University, KSA.
• Naqvi, Syed Nawab Hyder-(1981)-Ethics and Economics-Leicester, The Islamic Foundation, UK.
• Yusaf, Imam Abu, Kitabur Kharaj, Lahore, Islamic Book Centre, 1979.
Course Contents

The basic objective of the research paper is to train the students in the application of the different principles of economics.
Course Contents

Fiscal Policy

This course will discuss the impact of Fiscal policy on individual behavior and the macro economy. The goal of this course is to develop and use a dynamic theoretical model of individual decisions and study how government tax and transfer policies, government debt and deficits affect these decisions.

Course Contents:


Recommended Books:

• Burda, M. an d C. Wyplozt (200 1), Macroeconomics, A European Text, 3rd Edition, Oxford University Press.