SCHEME OF STUDIES

M.Sc
ECONOMICS
For
Distance Learning
2 years programme (4 semesters)

Department of Economics
GOVERNMENT COLLEGE UNIVERSITY
Faisalabad
## Scheme of Study for M.Sc. Economics

### 1st Semester

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Course Title</th>
<th>Course Code</th>
<th>C.H</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Micro Economics-I</td>
<td>ECO-551</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Macro Economics-I</td>
<td>ECO-553</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Mathematical Economics-I</td>
<td>ECO-555</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Economics Statistics</td>
<td>ECO-557</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Introduction to computer</td>
<td>ECO-559</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>15</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

### 2nd Semester

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Course Title</th>
<th>Course Code</th>
<th>C.H</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Micro Economics-II</td>
<td>ECO-552</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Macro Economics-II</td>
<td>ECO-554</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Mathematical Economics-II</td>
<td>ECO-556</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Statistical Inference &amp; decision making</td>
<td>ECO-558</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Public Finance</td>
<td>ECO-560</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>Monetary Economics</td>
<td>ECO-562</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>18</strong></td>
<td><strong>360</strong></td>
</tr>
</tbody>
</table>

### 3rd Semester

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Course Title</th>
<th>Course Code</th>
<th>C.H</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Islamic Economics</td>
<td>ECO-651</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Econometrics-I</td>
<td>ECO-653</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Major Issues in Pakistan Economy</td>
<td>ECO-655</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Research Methodology</td>
<td>ECO-657</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Environmental Economics</td>
<td>ECO-659</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>15</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

### 4th Semester

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Course Title</th>
<th>Course Code</th>
<th>C.H</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Development Economics</td>
<td>ECO-652</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>International Economics</td>
<td>ECO-654</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Econometrics II</td>
<td>ECO-656</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Computer Application in Quantitative Analysis in Economics</td>
<td>ECO-658</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Thesis</td>
<td>ECO-680</td>
<td>6(6-0)</td>
<td>120</td>
</tr>
<tr>
<td>6</td>
<td>OR Two optional courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Managerial Economics*</td>
<td>ECO-662</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Agriculture Economics*</td>
<td>ECO-664</td>
<td>3(3-0)</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>18</strong></td>
<td><strong>360</strong></td>
</tr>
</tbody>
</table>

**Grand Total: 66**
<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Course Title</th>
<th>Course Code</th>
<th>C.H</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agriculture Economics</td>
<td>ECO-662</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Managerial Economics</td>
<td>ECO-664</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>General Equilibrium and Welfare Economics</td>
<td>ECO-666</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Labor Economics</td>
<td>ECO-668</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Advanced Mathematical Economics</td>
<td>ECO-670</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Project Appraisal and Investment Analysis</td>
<td>ECO-672</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>Dynamic Macroeconomics</td>
<td>ECO-674</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Population Economics</td>
<td>ECO-676</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>Operations Research</td>
<td>ECO-678</td>
<td>3(3-0)</td>
<td>100</td>
</tr>
</tbody>
</table>
ECO-551. MICRO-ECONOMICS-I 3(3-0)

Introduction

Theory of Consumer Behavior and Demand Analysis

Market Demand & Elasticity

Production Functions

Cost of Production

ECO-552. MICRO-ECOOMICS-II 3(3-0)

Profit Maximization and Supply

The Theory of Market Behaviour

Monopoly: Monopoly & its Basics:


Game Theory

Pricing of Factors of Production

General Equilibrium

Welfare Economics

Uncertainty and risk Analysis

Recommended Books:

ECO-553. MACRO-ECONOMICS-I 3(3-0)

Introduction and National Income
Income Determination

Theories of Consumption and Their Implications

ECO-554. MACRO-ECONOMICS-II  3(3-0)

Saving and Investment

Money Market: The Demand and Supply of Money

Aggregate Demand, Supply and Stabilization Policy

Recommended Books:


ECO-555. MATHEMATICAL ECONOMICS-I  3(3-0)

The Nature of Mathematical Economics
Ingredients of mathematical models. Derivations: Equation of a straight line and its forms: Two point, intercept, point slope and slope intercept. Types of functions: constant,
polynomial, rational, non-algebraic. Relationships and functions. Indices & their rules. Functions of more than two independent variables. Logarithms & the rules of logarithms.

Equilibrium Analysis in Economics

Linear Models and Matrix Algebra

Input-Output Analysis
Input-output model, its structure and its derivation. The use of input output model in Economics.

Differentiation

ECO-556. MATHEMATICAL ECONOMICS-II 3(3-0)

Partial & Total Differentiation

Economic Applications of Partial & Total Differentiation

Optimization: Constrained & Extrema

Linear Programming

Recommended Books:
Introduction
Descriptive and inferential statistics; Variable and constant, population and sample, parameter and statistic; The four basic activities in statistics: Designing a plan for data collection, Exploring the data, Estimating an unknown quantity, Hypothesis testing; Type of measurement scales: Nominal, Ordinal, Interval and Ratio; Types of data: Univariate, Bivariate and Multivariate data, Primary and secondary data, Quantitative data and qualitative data, Time series, Cross-sectional and pooled data; Significant digits and rounding off numbers; Errors: Biased and unbiased.

Presentation of Data and Measure of Central Tendency
Introduction; Classification; Tabulating numerical data: The frequency distribution, The cumulative frequency distribution, The relative frequency distribution, The percentage frequency distribution; Graphic and diagrammatic representation: Bar chart, Pie chart, Histograms, Frequency curves and Histo-grams; Histograms by Hand: Stem-and-leaf. Measure of central tendency: Introduction; Types of Averages: Mean; Arithmetic mean, Geometric mean, Harmonic mean, Trimmed mean and Winsorized mean; Quintiles: Median, Quartiles, Deciles, Percentiles; The mode; Box plot and detailed box plot; Empirical relation between Mean, Median and Mode; The cumulative distribution function: Finding the percentile ranking for a given number, Finding the percentile for a given percentage; Summary measures and type of data.

Measures of Dispersion, Skewness and Kurtosis
Absolute and relative measure of dispersion; Different measures of dispersion: The Range, Quartile deviation, Mean deviation, Variance and standard deviation: Definition and interpretation of variance and standard deviation, Computation of variance and standard deviation, Step deviation method or coding method, Coefficient of variation, Standardized variable, Properties of standard deviation and variance; Skewness: Karl Pearson’s coefficient of skewness, Bowley’s coefficient of skewness; Kurtosis.

Probability and Probability Distribution
A survey of probability concepts: Classical probability, Empirical concept, Subjective probability; Some rules of probability: Rules of addition, Rules of multiplication; Tree diagrams; Conditional Probability, Bayes Theorem; Counting rules: The multiplication formula, The permutation formula, The combination formula. Discrete probability distribution, Random variables, Discrete random variable, Continuous random variable; The mean, variance and standard deviation of a probability distribution; Binomial probability distribution, and its computation. Cumulative probability distributions, Properties of Binomial probability distribution. The normal probability distributions; Properties of normal distribution, Applications of the standard normal distribution, Areas under the normal curve, Finding areas under the normal curve; The normal approximation to the binomial; Continuity correction factor.

Simple Linear Regression and Correlation Analysis
Scatter diagram; Standard methods for obtaining regression line: (i) Inspection, (ii) Semi average, (iii) Least squares principle; Assumptions underlying linear regression; Measures of variation: Standard error of the estimate, Coefficient of determination; Prediction in Regression Analysis; Interpolation versus extrapolation; Correlation analysis; Scatter diagram; The coefficient of correlation: Properties/characteristic of coefficient of correlation, Correlation and causation; The relationship among the correlation coefficient, the coefficient of determination and the standard error of estimate; Inference about the slope and correlation coefficient; t-test for the slope, F- test for the slope, t-test for correlation coefficient; Estimation of the mean values and predication of individual values; Confidence interval and predication interval estimate; Rank correlation.

Multiple Linear Regression and Correlation Analysis
Multiple linear regression model, Interpretation of partial regression coefficients; Estimation of multiple linear regression model with two explanatory variables by using Least squares
principle, Matrix approach, Deviation form; Pitfalls and problems in multiple regression: Multicollinearity, Variable selection, Model misspecification; Multiple standard error of estimate; Coefficient of multiple determination (adjusted and unadjusted); Evaluating the regression equation: Using a scatter diagram, Correlation matrix, Global test, Individual variable significance test, Qualitative independent variables; Multiple regressions in terms of linear correlation coefficients; Multiple correlation and partial correlation; Nonlinear regression models; Dealing with nonlinear relationship and unequal variability.

ECO-558. STATISTICAL INFERENCE AND DECISION MAKING 3(3-0)

Survey Sampling and Sampling Distributions
Sampling the population, Advantages of sampling, Representative samples, Sample design and sample survey, Sampling frame, Probability and non-probability sampling, Sampling with and without replacement, Sampling and non-sampling error, sampling bias; Probability sampling and non-probability sampling methods; Sampling distribution of the mean; The central limit theorem; Sampling distribution of differences between means; Sampling distribution of sample proportion; Sampling distribution of differences between proportions.

Estimation and Confidence Intervals
Point estimates and confidence intervals; Estimation by confidence interval: Confidence interval estimate of a population mean (Known Variance), Confidence interval estimate of a population mean (Unknown Variance) Confidence interval for differences of means, Confidence interval for differences of means; Confidence interval for population proportion, Confidence interval for differences between proportions; One sided confidence interval; Sample size for estimating population mean.

Hypothesis Testing
One sample test of hypothesis; One Sample; One tail and two tails tests of significance; Testing for a population mean with a known population standard deviation: Two-tailed test, one-tailed test; P-Value in hypothesis testing; Testing for a population mean: Large sample, Population standard deviation unknown; Testing hypotheses about population proportion when sample size is large; Type II error. Testing of two Sample Hypothesis: Population means, Population proportions; comparing populations with small samples.

Chi Square Applications
Introduction; Goodness-of-fit test: Equal expected frequencies; Goodness-of-fit test: Unequal expected frequencies; Limitations of Chi square; Using the goodness-of-fit test to test for normality; Contingency Table Analysis.

Analysis of Variance
Introduction, The F distribution; Comparing two population variances; ANOVA assumptions; ANOVA test; Inferences about pairs of treatment means; Two-way analysis of variance.

Applied Statistics
Index Numbers, Un-weighted index numbers; Simple aggregative index; Weighted indexes; Laspeyre’s price index, Paaseche’s price index, Marshal-Edgeworth price index; Fisher’s ideal index; Consumer Price Index (CPI), Producer Price Index (PPI), CPI versus GDP Deflator; Issues in constructing and using index numbers; Application of index numbers to business and ECOmics. An overview of time series analysis; Component Factors of the classical multiplication time series model and their estimation: Secular trend; Cyclical variation, Seasonal variation, Irregular variation; Smoothing the annual time series and using it in forecasting: Moving averages, Weighted moving averages, Exponential smoothing; Using trend and seasonal component in forecasting; Time series and forecasting; The multiplicative model, Calculating the seasonal indexes, De-seasonalization the time series, Using deseasonalized time series to identify trend, Seasonal adjustments, Model based on monthly data, Cyclical component; Modeling cyclic behavior using box-Jenkins ARIMA processes; Using regression analysis in forecasting; Qualitative approach to forecasting: Delphi method, Expert judgment, Scenario writing, Intuitive approaches; Choosing an appropriate forecasting model; Some observations on time series analysis.
Recommended Text books:


Additional Readings:


ECO-560: PUBLIC FINANCE 3(3-0)

Introduction and Role of Public Sector

The Theory of Public Goods

Public Revenue and Taxes

The Theory of Public Goods

Distributional Equity in Taxation

Tax Structure of Pakistan

Tax Shifting and Incidence

Fiscal Policy: Public Expenditure and Budget

Public Debt

Recommended Books:

ECO-562: MONETARY ECONOMICS 3(3-0)

Introduction and Development Of Monetary Mechanism
Evolution of Money and Payment System. Definition of Money Function of Money & Measurement of Money. Demand for Money & Supply of Money. Definitions of Money, M1, M2, M3, L etc.

Role of Money in the Economy

Demand for Money

The Money Supply Process

The Conduct of Monetary Policy: Central Bank
Money & Interest Rates

Money and Inflation

Monetary Policy in International Framework

Recommended Books:

ECO-651. ISLAMIC ECONOMICS 3(3-0)

Note: The instructor concerned may assign additional and latest literature on the subject matter. The references provided at the end of the course are just helping literature. Students must consult additional literature on each topic.

Introduction: Islamic Economics

Major Economic Thoughts: Contribution of Scholars

Islamic Economic System

Microeconomics in Islamic Framework
Organization of Production and Behavioural Theories of Firms.

The Modes of Financing In Islam
Modarba and Musharka,Types of Bai. (Bai-Salam, Bai Muajjal, Morabaha.)Saving and Investment in Islam. Investment of Savings for Gains.

Distribution in Islamic ECOomy

Some Basic Macroeconomic Concepts

Demand and Supply of Money and Banking

Zakat, Social Justice and State

The Islamisation Process In Pakistan

New Emerging Issues and Challenges

Books Recommended:

Basic Texts:
2. Islamic Economics: Dar A.H & M. Akram Ilmi Kitab Khana, Lahore (latest ed.)
3. Macro Consumption Function in an Islamic Economic Framework, M. Fahim Khan, International Centre for Research In Islamic Economics, King Abdual Aziz Univ, KSA.

ECO-653. ECONOMETRICS-I 3(3-0)
Introduction
Definition and scope of Econometrics, Econometric models vs. Statistical models Ingredients of Econometrics modeling Specification, estimation, verification or evaluation and forecasting.

The Classical Linear Regression Model
The Simple Linear Regression Model (SLRM)
Estimation of SLRM by Ordinary Least Squares (OLS); Interpretation of Estimated Coefficients and their ECOomic Meanings.

The Multiple Linear Regression Model (MLRM)
Estimation of MLR model by OLS and its assumptions, Interpretation of estimated coefficients and their ECOomic meanings, Computation of elasticities and standardized coefficients, Using R² as a measure of ‘Goodness of Fit’ and some problems with its use.

The General Linear Regression Model (GLRM)
Estimation of GLRM by OLS through Matrix Approach, Var-Cov matrix of estimated coefficients.

Evaluating an Estimated Linear Regression Model
Testing the significance of individual coefficients. Testing the significance of the model as a whole.

Multicollineary

Heteroskedasticity

Autocorrelation

Forecasting with a Single Equation Regression Model

ECO-656. ECONOMETRICS-II 3(3-0)

Errors in Variables, Time as a Variable, Dummy Variables, Grouped Data, Lagged and Distributed-Lag Variables

Identification
Simultaneous Equations Models
Why Simultaneous Equation Models? Various Types of simultaneous equation Models. The identification problem. Checking the identification state of a model or of a particular equation in the model by Order Condition, bogus equation and reduced from approaches. Identification and methods of estimation.

Consistent Estimation of Parameters of Simultaneous Equations Models

Varying Coefficient Models:

Time Series Econometrics

Suggested Books:
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:


ECO-654. INTERNATIONAL ECONOMICS 3(3-0)

A) International Trade Theory

Importance and Bases of Trade

Growth and Trade

Technology and Factor Endowment

Factor Endowment and Heckscher – Ohlin Theory

Tariff, Quota and Trade Policies

B) International Monetary Economics and Finance

Foreign Exchange Market and Exchange Rate Determination

**Purchasing Power Parity, Exchange Rates and Balance of Payments (B.O.P)**


**Open Economy: Monetary and Fiscal Policy**


**International Movements of Factors and Welfare: Impacts / Issues**


**International Institution: Trade, Capital and B.O.P.**


**Basic Readings:**


**Additional Readings:**


**ECO-652. DEVELOPMENT ECONOMICS 3(3-0)**
Note: Students are expected to study latest editions of the recommended books. At least two research papers pertaining to each topic must be comprehended. Each topic must be prepared and analyzed critically. Any aspect of the topics may be asked in the examination. The course content provides a guideline. Students must prepare critical review of topics.

Part: A Theoretical Foundations and Sector Specific Issues:

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?

Major Theories of Development

Agriculture and Industry

Population, Education and Human Capital

Part B: International Development Issues and Debates

International Debt, Aid / Assistance

WTO, Liberalization and International Trade

Transnational Corporations (TNC’S), FDI and Development
Transnational Corporations (TNC’s): Objectives, Role and Contributions, Long term cost of TNC’s. Transfer of Technology: Ways and Means. Global integrated production system:
TNC’s and Globalization, Foreign Direct Investment (FDI) and Its Determinants/Role. Foreign Direct Investment (FDI) and TNC’s. Flow of FDI and its contributions.

**Poverty and Income Distribution**

**Environment and Development**

**Growth Models**

**Recommended Books:**


**ECO-658: COMPUTER APPLICATION IN QUANTATIVE ANALYSIS IN ECONOMICS 3(3-0)**

Introduction to Windows 2000 and Ms-Word
PowerPoint 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

Econometrics Analysis and Computer Applications

Recommended Books:
1. E-View Manual, (Learning help available with package (software)).

OPTIONAL COURSES

ECO- 662 : AGRICULTURAL ECONOMICS 3(3-0)

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.

Structure and Characteristics of Agriculture in LDCs

Role of Agriculture in Economic Development

Theory of Rent and the Concept of ‘Surplus’

Agriculture in Dualistic Development Models

Resource Use Efficiency and Technical Change in Peasant Agriculture

Supply Response

Institutional Constraints and Remedial Policies

Population and Food Supplies

Agriculture and International Trade

Suggested Readings:

ECO - 664 : MANAGERIAL ECONOMICS 3(3-0)

Nature, Scope and Overview of Managerial Economics

Demand Analysis, Estimation and Forecasting

Production and Cost Analysis

Linear Programming

Decision Making Under Risk and Uncertainty

Pricing Analysis and Decisions

A Critique of Traditional Theory of the Firm

Managerial Theories and Models of the Firm
Baumol’s Theory of Sales Revenue Maximization. Marris’s Model of Managerial Enterprise. Williamson’s Model of Managerial Discretion Topics, Behavioral Model by Cyert and March.

Public Sector Production and Pricing of Goods.

Capital Budgeting and Investment

Suggested Readings: (Books):

Suggested Readings (Articles):

ECO-666: GENERALEQUILIBRIUM AND WELFARE ECONOMICS


Recommended Books
- Jehle, G.A., & P.J. Reny, Advanced Microeconomics, Theory, Addison Wesley, 2001 (2nd ed.)
- Varian, H., Microeconomics Analysis, Norton 1992 (3rd ed)

ECO-668: LABOR ECONOMICS
Topic 1: Importance of Labor Economics

Topic 2: Labor Markets Analysis: Demand for Labor

Topic 3: Labor Market: Supply of Labor and Wages

Topic 4: Wages, Unemployment and Inflation

Topic 5: Labor Market Discrimination
Discrimination in Labor Market: Gender, Race and Ethnicity. Efficiency Wage Theories and Coordination Failure.

Topic 6: Labor Market Information System

Topic 7: Theories of Labor Movements

Topic 8: Child Labor

Reading List:

ECO-670: ADVANCED MATHEMATICAL ECONOMICS

Topic 1: Complex Number and Circular Functions

Topic 2: Integral Calculus

**Topic 3:** Differential Equations: Continuous Time:

1. **First Order Linear Differential Equations**

**Topic 4:** Differential Equations: Higher Order Differential Equations


**Topic 5:** Difference Equations: Discrete Time:

1. **First Order Difference Equations**

**Topic 6:** Higher Order Difference Equations


**Topic 7:** Non-Linear Programming


**Recommended Books:**


Additional Readings:

ECO-672: PROJECT APPRAISAL AND INVESTMENT ANALYSIS

Topic 1: Introduction
Meaning of Project Appraisal, usefulness and significance, Aspect of project appraisal with a special focus on economic versus financial analysis, Contours and Dimensions of a project and its essential ingredients, Project Vs. Plans. Project Cycle.

Topic 2: Identify Project Benefits and Costs

Topic 3: Pricing Project Costs and Benefits
Prices reflecting values, Market price and financial analysis, Finding market prices and related problems, Change in relative prices and inflation: Shadow Prices and economic analysis, Removal of market price distortions in traded and non-traded goods. Premium on foreign exchange through use of Shadow exchange rate and conversion factor approach.

Topic 4: Comparing Project Costs and Benefits (Measuring of a Project Worth)

Topic 5: Applying Discounted Measures of Project Worth
Sensitivity analysis, Switching value, Choice among mutually exclusive alternatives, Domestic resource cost of foreign exchange earning / saving.

Topic 6: Cost Effectiveness Analysis
Areas and elements of analysis, Methods of analysis: Constant Effect Method, Constant Cost Method, Measuring of cost effectiveness, Present Worth, Annual Worth, Cross over discount rate, Limitation of analysis.

Topic 7: Financial (Investment) Analysis
Theoretical and empirical examination and saving and investment, Concept of capitalization types of securities, non-banking financial institution. Development financing, Asset Structure, Stock Prices, Money Market, Portfolio Theory and Investment Analysis. Financing the industrial sector; Large scale and small scale, Interest rate. Bond
market, Real and financial investment. Financial intermediaries; Speculation and Inter – relationship of financial and real variables in the economy.

Suggested References:


ECO-674 DYNAMIC MACROECONOMICS

Construction and analysis of dynamic models of macroeconomics and monetary phenomenon with focus on non-linearity, multiplicity of equilibria, and indeterminacy; stability and instability of macroeconomic equilibrium in linear and non-linear models; continuous and discrete time; classical and Marxian accumulation models with multiple indeterminate, cyclical and chaotic equilibrium paths; non-linear stability bifurcation theory, dynamic stochastic optimization techniques. Disequilibrium models; price and quantity adjustments of multiple equilibria, stability in the long-run.
Recommended Books


ECO-676: POPULATION ECONOMICS


Recommended Books


ECO-678: OPERATIONS RESEARCH (OR)

**Topic 1. Introduction**


**Topic 2. Linear Programming**

Meanings and objectives of Linear Programming Models. Formulation of Linear Programming model/problem. Solutions of linear programming problems:

(a) Graphical approach

(b) Algebraic solution (Simplex method, M-technique and two-phase method).

(c) Degeneracy, Alternative optima, unbounded solutions and Non-existing solutions.

**Topic 3: Duality and Sensitivity Analysis**


**Topic 4: Transportation Model**

Definition and application of the transportation model. Solution of the transportation problem. The Assignment model, solution and application of assignment model. The transshipment model.

**Topic 5: Project Scheduling By Pert-CPM**


**Topic 6: Inventory Models**

Meaning and objectives of Inventory model. Formulation of generalized inventory model. Types of inventory model:

(a) Deterministic Models:
Single-item static model, single-item model with price breaks, multiple-items static model with storage Limitations, Single-item N-period dynamic model and N-period production scheduling model.

(b) Probabilistic Models:
A continues review model, single period models and multi period model.

Topic 7. Dynamic Programming
Elements of the Dynamic model.
Examples of dynamic programming models and computations.

Books Recommended:


Reference Books: