

**Revised and Updated Curriculum**  
**BS (Economics & Finance)**  
**(Four Years Program)**  
**2024**



**DEPARTMENT OF ECONOMICS**  
**UNIVERSITY OF KARACHI**  
**KARACHI-75270, PAKISTAN**

# Bachelor of Studies Degree (BS)

<b>FIRST SEMESTER [18 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs.</b>	<b>Type</b>
300.1 (E)	English I	2	Arts & Humanities (G. Edu)
300.1 (I.S)	Islamic Studies OR Ethics (Non-Muslim)	2	Compulsory (G. Edu)
300.1 (Civ/Com)	Civics and community engagement	2	Compulsory (G. Edu)
300.1 (N. Sc)	Everyday Science, astronomy, physics, chemistry, earth science, or biology.	3	Compulsory (G. Edu)
BEF-301	Principles of Microeconomics	3	Major 1
BEF-303	Introduction to Finance	3	Major 2
BEF-305	Mathematics for Business and Economics	3	Major 3
		<b>18</b>	

<b>SECOND SEMESTER [18 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
300.2 (P.S)	Ideology & constitution of Pakistan	2	Compulsory (G. Edu)
300.2 (F. Eng)	Functional English	3	Compulsory (G. Edu)
300.2 (Entr)	Entrepreneurship	2	Compulsory (G. Edu)
300.2 (Soc. Sc)	Intro to Soc. Sc, anthropology, Urdu, economics, history, geography, or psychology.	2	Social Sciences (G. Edu)
BEF-302	Principles of Macroeconomics	3	Major 4
BEF-304	Principles of Accounting	3	Major 5
BEF-306	Mathematics for Business and Economics	3	Major 6
		<b>18</b>	

<b>THIRD SEMESTER [21 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
400.1 (Q. Reas))	Quantitative Reasoning	3	Compulsory (G. Edu)
400.1 (E. Writ))	Expository writing	3	Compulsory (G. Edu)
BEF-401	Money & Banking	3	Major 7
BEF-403	Economic Planning	3	Major 8
BEF-405	Public Finance	3	Major 9
BEF-407	Statistics for Business and Economics	3	Major 10
BEF-409	Financial Economics	3	Major 11
		<b>21</b>	

<b>FOURTH SEMESTER [21 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
400.2 (Q. Reas))	Quantitative Reasoning	3	Compulsory (G. Edu)
400.2 (ICT)	Application of Inf. & Comm. Technologies	3	Compulsory (G. Edu)
BEF-402	International Trade & Finance	3	Major 12
BEF-404	Economic Development	3	Major 13
BEF-406	Fiscal Management	3	Major 14
BEF-408	Statistics for Business and Economics	3	Major 15
BEF-410	Analysis of Pakistan's Economy	3	Major 16
		<b>21</b>	

<b>FIFTH SEMESTER [21 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
BEF-501	Microeconomics: Theory & Application	3	Major 17
BEF-503	Monetary Economics	3	Major 18
BEF-505	Financial Accounting	3	Major 19
BEF-507	Quantitative Methods for Economics & Finance	3	Major 20
BEF-509	Business Management	3	Major 21
BEF-511	Portfolio Management	3	Major 22
500.1	Field Experience/Internship	0 +3	Compulsory (G. Edu)
		<b>21</b>	

<b>SIXTH SEMESTER [21 Credit Hours]</b>			
<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
BEF-502	Macroeconomics: Theory & Application	3	Major 23
BEF-504	Decision Science	3	Major 24
BEF-506	Managerial Accounting	3	Major 25
BEF-508	Financial Institutions and Markets	3	Major 26
BEF-510	Corporate Finance	3	Major 27
BEF-512	Environmental Economics and Finance	3	Major 28
500.2	Capstone Project	0 + 3	Compulsory (G. Edu)
		<b>21</b>	

**SEVENTH SEMESTER [21 Credit Hours]**

<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
BEF-601	International Finance	3	Major 29
BEF-603	Econometrics	3	Major 30
BEF-605	Project Management	3	Major 31
BEF-607	Human Resource Management	3	Major 32
BEF-609	Entrepreneurship	3	Major 33
BEF-611	Game Theory	3	Major 34
BEF-613	Real Estate Economics	3	Major 35
		<b>21</b>	

**EIGHTH SEMESTER [21 Credit Hours]**

<b>Course Code</b>	<b>Subject</b>	<b>Cr. Hrs</b>	<b>Type</b>
BEF-602	Financial Management	3	Major 36
BEF-604	Computer Orientation & Information Economics	3	Major 37
BEF-606	Research Methodology	3	Major 38
BEF-608	Analysis of Pakistan Industries	3	Major 39
BEF-610	Islamic Banking & Finance	3	Major 40
BEF-612	Behavioral Economics and Finance	3	Major 41
BEF-614	Time Series Analysis	3	Major 42
		<b>21</b>	

Degree Title	B.S. Economics and Finance
Total Credit Hours	162 Credit Hours
Degree Qualifying CGPA	2.2 / 4.0
Pass percentage	50%
Duration	4 years
Semester	8

**NOTE:**

- The total cr. hrs. of the program should not be less than 162.
- Internship and Capstone project may be completed during the semester breaks.

**DEFICIENCY COURSES**

**For the Students entering in V Semester (Third Year BS Economics and Finance)**

Deficiency courses will be assigned to students based on the credit hours they have completed in their two-year bachelor's degree program.

## **BEF-301: Principles of Microeconomics**

### **Course Description**

This introductory course is tailored for students with minimal or no prior knowledge of economics. It aims to provide a foundational understanding of key microeconomic concepts, analytical tools, and terminologies. Students will explore basic principles through the use of graphs, diagrams, and numerical tables. Real-world examples will be employed to clarify and reinforce the concepts covered.

### **Course Objectives**

- To explain the fundamental functioning of the economy at the micro level.
- To illustrate the connection between microeconomic phenomena and macroeconomic situations.
- To analyze consumer and firm behavior in various contexts to optimize economic well-being.
- To examine techniques used by firms to minimize production costs in both the short and long run.
- To enhance understanding of contemporary business decision-making processes aligned with economic mechanisms.

### **Course Contents**

#### **1. Introduction**

- Overview of the social system and the economy's role
- Economic agents and economic problems
- Economics as the science of choices between competing wants and limited resources
- Classification, importance, and scope of microeconomics
- Basic concepts: commodities, income, resources, production, consumption, exchange, and distribution

#### **2. The Price Mechanism**

- Concept of a market economy
- Laws of demand and supply
- Demand and supply schedules and graphs
- Market equilibrium and price determination
- Movements and shifts in demand and supply curves

- Concept and importance of elasticity of demand and supply

### **3. Consumer Behavior**

- Consumers/households as economic agents
- The utility theory and laws of diminishing marginal utility
- Budget constraints and consumer equilibrium
- Individual versus market demand
- Introduction to demand elasticity

### **4. Firms and Industries**

- Forms of business organization: proprietorship, partnership, joint-stock companies, and multinational corporations
- Classification of firms
- Production and supply of goods and services
- Objectives of firms: profit motive, output maximization, and cost minimization
- Industrial structure and market supply

### **5. Production and Cost Functions**

- Production function and factors of production
- Laws of returns
- Revenue concepts: total, average, and marginal revenues
- Cost functions: total, average, and marginal costs
- Short-run and long-run costs
- Firm equilibrium

### **6. Market Structure**

- Classification of markets: nature of commodity, extent, time, and degree of competition
- Perfect competition

- Imperfect competition: monopoly, monopsony, and monopolistic competition
- Price determination in various market structures

## **7. Market Failure**

- Need for market regulation and the role of government
- Public goods and their provision beyond the market

### **Recommended Books**

- Clark, J. (2021). Principles of Microeconomics. SOC.
- Gans, J., King, S., Byford, M., & Mankiw, N. G. (2018). Principles of Microeconomics: Australia and New Zealand Edition. Cengage AU.
- Kolmar, M. (2017). Principles of Microeconomics. Springer International Publishing AG.
- Perloff, J. M. (2016). Microeconomics (7th ed.). Pearson.



## **BEF-303: Introduction to Finance**

### **Course Description**

This course introduces the fundamental concepts and principles of business finance. Designed for students with no prior background in finance, it covers essential terminologies, financial analysis methods, and practical applications. Topics include capital investment opportunities, financial technologies, and methods for business planning and control.

### **Course Objectives**

- To build upon financial accounting knowledge and provide an advanced understanding of financial techniques.
- To analyze financial statements, plan cash flows, and project financial outcomes.
- To value bonds and stocks and understand capital budgeting decisions.

### **Course Contents**

#### **1. An Overview of Finance**

- Scope of finance and career opportunities
- Alternative forms of business organization
- Finance's role in organizational structure
- Managerial actions to maximize shareholders' wealth
- Functions of a finance manager

#### **2. The Financial Environment: Markets, Institutions, and Interest Rates**

- Financial markets and institutions
- The stock market
- The cost of money and interest rates
- Determinants of market interest rates

#### **3. Time Value of Money**

- Future value concept

- Present value concept
- Future value and present value of annuities

#### **4. Risk and Return**

- Investment return
- Risk-return trade-off
- Risk in a portfolio context

#### **5. Analysis of Financial Statements**

- Ratio analysis: liquidity, asset management, debt management, profitability, and market value ratios
- Trend analysis
- Uses and limitations of ratio analysis

#### **6. The Impact of Operating and Financial Decisions on the Firm**

- Operating leverage
- Financial leverage
- Combined or total leverage

#### **7. The Framework of Financial Planning**

- Short-term and long-term financial planning

#### **8. The Cost of Capital**

- Basic definitions
- Cost of debt, preferred stock, and retained earnings

#### **9. The Basic Concept of Capital Budgeting**

- Importance of capital budgeting
- Generating ideas and project classification

- Capital budgeting decision rules
- Comparison of NPV and IRR methods

### **10. Working Capital Management**

- Importance of working capital
- Short-term financial decisions and value maximization
- Managing current assets and liabilities
- Working capital policy

### **11. Cash and Near-Cash Item Management**

- Efficient collection and disbursement of operating cash
- Optimal cash balance
- Investing excess cash in marketable securities
- Evaluating cash management strategies

### **12. Accounts Receivable and Inventory**

- Managing accounts receivable and inventory
- Monitoring accounts receivable, aging, and collection schedules

### **13. Current Liabilities Management**

- General considerations in managing current liabilities
- Sources of short-term credit

### **Recommended Books**

- Booth, L., Cleary, W. S., & Rakita, I. (2020). Introduction to Corporate Finance. John Wiley & Sons.
- Houston, J. F., & Brigham, E. F. (Latest International Edition). Financial Management: Theory and Practice. Harcourt Brace College Publishers.
- Rao, R. K. S. (1989). Fundamentals of Financial Management. Maxwell Macmillan.

## BEF-305: Mathematics for Business and Economics

### Course Description:

This course introduces students to the fundamental concepts of algebra and calculus as applied in economics. It covers basic algebraic operations, linear and non-linear equations, determinants, matrix algebra, and the application of these concepts to economic models. The course also delves into calculus, introducing limits and differentiation, and explores their economic applications. By the end of this course, students will develop the mathematical tools necessary to analyze and interpret economic problems quantitatively.

### Course Objectives:

By the end of the course, students will be able to:

1. Understand and apply basic algebraic operations relevant to economics.
2. Solve linear and non-linear equations, including simultaneous equations, and apply these to economic models.
3. Work with determinants and matrices to solve systems of equations.
4. Use calculus, particularly limits and differentiation, to analyze economic functions.
5. Apply mathematical tools in constructing and analyzing economic models.

### Course Content:

#### Part I: Algebra

##### 1. Pre-Requisites

- Classification of Economic Variables, Constants, and Parameters
- Components of Economic Models

##### 2. Indices

- Introduction to Indices
- Laws of Indices

##### 3. Linear Equations

- Introduction to Linear Equations
- Linear Equations in One Unknown
- Linear Equations in Two Variables
- Inverse Function
- Simultaneous Equations
- Applications to Simultaneous Equations in Economics
- Graphical Representation in Economic Applications

##### 4. Determinants

- Description and Evaluation of Determinants
- Laplace Expansion Method
- Properties of Determinants
- Cramer's Rule and Applications

##### 5. Matrix Algebra

- Introduction to Matrices
- Operations with Matrices
- Inverse of a Matrix
- Matrix Solutions to Simultaneous Equations
- Economic Applications of Matrix Algebra

##### 6. Non-linear Equations

- Introduction to Quadratic Equations
- Solving Non-linear Simultaneous Equations

## Part II: Calculus

### 1. Limits and Difference Quotients

- Introduction to Limits
- Limit of a Function
- The Difference Quotient

### 2. Differentiation

- Introduction to Derivatives
- Chain Rule, Product Rule, and Quotient Rule

### Recommended Reading:

1. Hussain, S. M. A. (n.d.). *Mathematics for Students of Economics*. Kifayat Academy.
2. Finney, T. (2000). *Calculus and Analytic Geometry* (9th ed.). Addison-Wesley.
3. Budnick, F. S. (1995). *Applied Mathematics for Business, Economics, and the Social Sciences* (4th ed.). McGraw-Hill Education.

## **BEF-302: Principles of Macroeconomics**

### **Course Description**

Macroeconomics is the study of the overall economy, providing a "big picture" perspective on economic health and well-being. This course aims to deepen students' understanding of key issues affecting the economy, including the measurement of economic activity and the impact of policies on macroeconomic equilibrium. The course will cover essential concepts and tools used in analyzing economic performance on both national and global levels.

### **Course Objectives**

- Familiarize students with fundamental concepts and terminology in macroeconomic theory.
- Equip students with tools to analyze and measure economic performance at the national and global levels.
- Examine relationships among key economic variables such as money supply, interest rates, and exchange rates.
- Identify and evaluate different schools of macroeconomic thought, including areas of agreement and disagreement.

### **Course Contents**

#### **I. Introduction and Measurement**

- What is Macroeconomics and how it impacts everyday lives
- Business cycles: Inflation and Natural real GDP
- Six macroeconomic puzzles
- Taming the business cycles: Stabilization Policy

#### **II. The Measurement of Income, Prices, and Unemployment**

- The circular flow of income and expenditure
- What transactions should be included in income and expenditure
- Components of expenditure
- Nominal and real GDP and the GDP deflator
- How nominal GDP is split between inflation and changes in real GDP

- Measuring unemployment

### **III. Income, Interest Rates, Policy, and the Global Economy**

- Business cycles, unemployment, and income determination
- Planned expenditure
- The economy in and out of equilibrium
- The multiplier effect (government spending, tax, and balanced budget multipliers)
- Recessions and fiscal policy
- The effects of tax changes multiplier
- International trade, net exports, and the multiplier

### **IV. The IS-LM Model**

- Interest rates and rates of return
- The relation of autonomous planned spending to the interest rate
- The IS curve and the commodity market
- Why people use money
- Income, interest rates, and the demand for money
- The LM curve and the money market
- IS meets LM curve
- Monetary policy in action
- Fiscal policy in action
- Fiscal policy and crowding out

### **V. Monetary Policy, Fiscal Policy, and the Government Budget**

- Strong and weak effects of monetary policy
- Strong and weak effects of fiscal policy
- The fiscal-monetary policy mix
- Structural and cyclical budget deficits

- National saving and consequences of budget deficits

## **VI. Aggregate Demand, Aggregate Supply, and Inflation**

- The role of AD and AS
- Flexible prices and the AD curve
- Shifting the AD curve with monetary and fiscal policy
- Alternative shapes of the short-run AS curve
- AS curve and its relationship with nominal and real wage rates
- Fiscal and monetary expansion in the long and short run
- Classical macroeconomic theory: QTM and the self-correcting economy
- The Keynesian revolution: Failure of self-correction

### **Recommended Books**

- Gordon, R. J. (2012). *Macroeconomics* (12th ed.). Pearson Education Inc., Prentice Hall.
- Sikdar, S. (2020). *Principles of Macroeconomics*. Oxford University Press.
- Coppock, L., & Mateer, D. (2017). *Principles of Macroeconomics* (p. 720). W.W. Norton.



## **BEF-304: Principles of Accounting**

### **Course Description**

The Principles of Accounting course introduces students to the process and function of financial reporting. While focusing on understanding accounting from a preparer's perspective, the course also emphasizes the importance of accounting in today's financial environment. Students will gain insights into the fundamental principles, concepts, and conventions of accounting, as well as the preparation and presentation of financial statements.

### **Course Objectives**

- Understand and explain fundamental accounting principles, concepts, and conventions.
- Record transactions in the general journal and prepare ledger accounts.
- Prepare unadjusted and adjusted trial balances, including year-end adjustments.
- Make closing and reversing entries and prepare financial statements in accordance with IFRS/IAS and the Companies Ordinance format.
- Calculate and record depreciation using permitted methods.

### **Course Contents**

#### **1. Accounting Conventions, Concepts, and Principles**

- Definition and scope of accounting
- Basic principles of accounting
- Concepts and conventions
- Underlying accounting statements
- Substance over form
- The impact of international accounting standards on accounting procedures, practices, and statement preparation

#### **2. Accounting Systems and Procedures**

- Principles of double-entry bookkeeping
- Accrual-based accounting system
- Adjusting, closing, and reversing entries

- Methods of keeping and presenting books of prime entry
- Principal and subsidiary ledgers
- Trial balance and completion of the accounting cycle
- Components of financial statements
- Responsibility and users of financial statements

### **3. Cash Control**

- Preparation of three-column cash book and petty cash statement
- Maintenance of the petty cash system
- Preparation of bank reconciliation statement
- Cash receipts and payments accounts
- Internal audit related to cash control, financial control, errors, and frauds

### **4. Control Accounts**

- Receivable control accounts
- Payable control accounts
- Errors of control accounts and reconciliation of control accounts and subsidiary ledger

### **5. Rectification of Error**

- Types and corrections of errors not affecting the trial balance
- Corrections of errors affecting the trial balance, including suspense accounts

### **6. Depreciation of Tangible Non-Current Assets**

- Recognition and measurement of tangible non-current assets
- Capital and revenue expenditures
- Concept of depreciation
- Methods of measuring and recording depreciation as per IAS-16

## **7. Preparation and Presentation of Financial Statements**

- Preparation and presentation of financial statements for trading and services concerns
- Elements/components of financial statements in accordance with IAS-1 and the Companies Ordinance

### **Recommended Books**

- Weygandt, J. J., Kieso, D. E., Kimmel, P. D., Trenholm, B., Warren, V., & Novak, L. (2019). Accounting Principles, Volume 2. John Wiley & Sons.
- Yasyshena, V. V. (2019). Principles of Accounting Policies of Intangible Assets. Innovative.

## BEF-306: Mathematics for Business and Economics

### Course Description

This course is designed to provide students with a deeper understanding of calculus and differential equations, focusing on their applications in economics. It builds on foundational mathematical concepts and introduces advanced techniques in integration, differentiation, and solving differential equations. Through practical examples and problem-solving, students will enhance their analytical skills and learn how to apply these mathematical tools to real-world economic problems.

### Course Objectives

By the end of the course, students will be able to:

- Develop a thorough understanding of logarithmic functions, limits, and derivatives, and their applications.
- Master techniques of integration, including definite and improper integrals.
- Solve first and higher-order differential equations with various methods.
- Apply differential equations to model and solve economic problems.
- Use mathematical tools to enhance quantitative analysis in economics.

### Course Contents

#### 1. Basic Concepts

- Logarithms
  - Properties of Logarithmic Functions
  - Applications in Economics
- Limits
  - Limit Laws and Computations
  - Continuity and Its Importance in Economic Models
- Derivatives
  - Definition and Interpretation of Derivatives
  - Rules of Differentiation (Product, Quotient, Chain Rules)
  - Applications of Derivatives in Marginal Analysis
- Partial Derivatives
  - Multivariable Functions
  - Applications in Optimization Problems in Economics

#### 2. Integral Calculus

- Anti-Derivatives
  - Basic Techniques and Rules of Integration
  - Applications in Economic Areas like Consumer and Producer Surplus
- Techniques of Integration
  - Substitution, Integration by Parts
  - Trigonometric Integrals and Substitution
- Riemann Integral
  - Definition and Properties of Definite Integrals
  - Applications in Cumulative Growth Models
- Mean Value Theorem
  - Theoretical and Practical Implications
- Reduction Formulae
  - Practical Techniques for Complex Integrals

- Improper Integrals
  - Definitions and Applications in Economic Models (e.g., Infinite Time Horizon Models)

### 3. Differential Equations I

- Differential Equations
  - Definitions, Types, and Real-World Applications
- Formation and Solutions of Differential Equations
  - General and Particular Solutions
  - Application in Economic Growth Models
- First Order Differential Equations
  - Separable, Linear, Exact Equations
  - Initial and Boundary Value Problems
- Various Methods of Solving First Order Differential Equations
  - Substitution and Transformation Methods
  - Bernoulli's Equation
- Nonlinear First Order Equations
  - Applications in Economic Modelling
  - Envelopes and Singular Solutions

### 4. Differential Equations II

- Higher-Order Differential Equations
  - Differential Equations with Constant Coefficients
  - Homogeneous and Non-Homogeneous Equations
- Superposition of Solutions
  - Linear Combinations of Solutions
  - Economic Models Involving Second-Order Equations
- Cauchy-Euler Equations
  - General Solutions to Variable Coefficient Equations
- Systems of Differential Equations
  - Systems of Two First Order Linear Homogeneous Equations
  - Matrix Methods for Solving Systems
- Nonlinear Equations
  - Nonlinear Systems and Their Economic Implications

### Recommended Books

1. Yousuf, S. M., Majeed, A., & Amin, M. (2016). *Mathematical Methods*. Ilmi Kitab Khanna.
2. Anton, H., Bevens, I., & Davis, S. (2005). *Calculus* (8th ed.). John Wiley & Sons.
3. Hughes-Hallett, D., Gleason, A. M., McCallum, W. G., et al. (2017). *Calculus: Multivariable* (7th ed.). Wiley.
4. Apostol, T. M. (2005). *Calculus, Volume 1: One-Variable Calculus, with an Introduction to Linear Algebra*. Wiley.

## **BEF-401: Money and Banking**

### **Course Description**

This course explores the integral role of money, the banking sector, and financial markets in the economic development of a country. It is divided into three main sections: money, banking, and financial markets, highlighting their interconnections within the broader financial system. Students will gain a comprehensive understanding of how these elements interact to influence economic stability and growth.

### **Course Objectives**

- Understand the role and importance of money in economic activities.
- Examine the functioning of banking institutions and their impact on economic progress.
- Analyze the structure and significance of financial markets in maintaining economic stability.
- Develop a critical understanding of monetary theories and policies.
- Evaluate the roles of central and commercial banks in financial regulation and economic development.

### **Course Contents**

#### **1. Introduction to Money**

- The barter system and the emergence of money
- Functions and significance of money in economic development
- Characteristics of objects used as money

#### **2. Monetary Standards**

- Key terminology and concepts
- Commodity standards and metallic systems (mono-metallic vs. bi-metallic)
- History and contemporary relevance of the gold standard

#### **3. Theories of Money Demand and Supply**

- Classical theories of money demand (Irving Fisher, Alfred Marshall, A.C. Pigou)
- Keynesian liquidity pRecommended theory

- Milton Friedman's quantity theory of money
- Tobin's approach and implications for macroeconomic aggregates

#### **4. Modern Monetary Theory**

- Monetarism, New Classical Economics, and Real Business Cycle Theory
- Post-Keynesian perspectives

#### **5. Monetary Policy**

- Objectives and targets of monetary policy
- Monetary transmission mechanisms and policy limitations
- The relationship between monetary policy and inflation

#### **6. Overview of Financial Markets**

- Instruments and institutions in financial markets
- The role of financial markets in economic progress and stability
- International aspects of financial markets

#### **7. Central Banking**

- The role of central banks in maintaining economic and financial stability
- Functions and recent policies of the State Bank of Pakistan

#### **8. Commercial Banking**

- Banking operations and their role in commerce and trade
- Issues in consumer financing and other challenges in Pakistan's banking sector

#### **9. Portfolio Selection Models**

- Savings-consumption decisions and risk aversion theories
- Risk and return tradeoffs and portfolio risk management

### **Recommended Books**

- Mishkin, F. S. (2012). *The Economics of Money, Banking, and Financial Markets* (10th ed.). Prentice Hall.
- Miller, R. L., & VanHoose, D. D. (1993). *Modern Money and Banking* (3rd ed.). McGraw-Hill.
- Cecchetti, S., & Schoenholtz, K. (2011). *Money, Banking, and Financial Markets* (3rd ed.). McGraw-Hill/Irwin.
- Ritter, L. S., Silber, W. L., & Udell, G. F. (2011). *Principles of Money, Banking & Financial Markets* (12th ed.). Prentice Hall.
- Meenai, S. A., & Ansari, J. A. (2010). *Money and Banking in Pakistan* (6th ed.). Oxford University Press.



## **BEF-403: Economic Planning**

### **Course Description**

This comprehensive course provides a thorough understanding of economic planning as a tool for managing economies, particularly in developing and mixed economies. The first part of the course focuses on the theoretical foundations of development planning, exploring different planning models and their implications, particularly in the context of Pakistan. The second part dives deeper into practical applications, assessing Pakistan's development plans and evaluating the effectiveness of various strategies in economic planning. By integrating theory and practice, the course equips students with the tools to analyze and contribute to development planning at both national and regional levels.

### **Course Objectives**

By the end of this two-semester course, students will be able to:

1. Understand the significance and theories of economic planning in managing national economies.
2. Analyze different economic planning models and their applications in various economic contexts.
3. Critically evaluate the effectiveness of economic planning in developing countries, particularly in Pakistan.
4. Assess the role of policy tools such as monetary, fiscal, and commercial policies in shaping economic plans.
5. Explore sectoral, regional, and strategic planning, identifying challenges and future trends in development planning.
6. Evaluate the role of foreign finance and domestic resource mobilization in economic development.
7. Understand the impact of globalization, digital technologies, and other emerging trends on economic planning.

### **Course Contents**

#### **1. Introduction to Economic Planning**

- The importance of economic planning.
- Interdisciplinary links of planning with other economic and social sciences.

#### **2. Development Planning: Theory and Practice**

- Planning frameworks in capitalist, collectivist, and mixed economies.

- Role of government in economic planning.

### **3. Types of Planning Models**

- Overview of aggregate growth models, sectoral projection models, and comprehensive inter-industry models.
- Applications of planning models in different economic systems.

### **4. Types of Economic Planning**

- Instruments of planning: Control, inducement, and direction.
- Comparative analysis of economic planning types.

### **5. Issues in Economic Planning**

- Challenges in implementation and the resurgence of market pRecommended.
- Lessons from failed and successful planning initiatives in developing countries.

### **6. Policy Options in Economic Planning**

- Analysis of monetary, fiscal, and commercial policy tools.
- Their application in developing and mixed economies, with a focus on Pakistan.

### **7. Financing Economic Development**

- The role of foreign finance in economic development.
- Domestic resource mobilization and its challenges.

### **8. Economic Decision Making and Short to Medium-Term Planning**

- Management approaches for short- and medium-term economic planning.
- Case studies of decision-making processes in economic planning.

## **9. Review of Planning Models**

- Assessing the performance of previous planning models.
- Lessons learned from historical economic plans.

## **10. Strategic Planning and Policy Formulation**

- Principles of strategic planning.
- Role of evidence-based decision-making in policy formulation.

## **11. Sectoral Planning**

- Examination of sector-specific plans (agriculture, industry, services).
- Sectoral priorities in economic development.

## **12. Regional Planning and Spatial Development**

- Exploring spatial planning for balanced regional development.
- Role of urbanization and rural development in economic growth.

## **13. Monitoring and Evaluation of Development Plans**

- Techniques for evaluating the success of development plans and projects.
- Tools for monitoring progress and outcomes of economic plans.

## **14. Challenges in Implementation**

- Identifying barriers to successful planning and strategies to overcome them.
- Addressing political, economic, and social challenges.

## **15. Future Trends in Economic Planning**

- The impact of globalization and digital technologies on economic planning.
- Future trends: Sustainable development, climate change, and technological innovation.

## **Recommended Books**

1. Thirlwall, A. P. (2006). Growth and development (8th ed.). Palgrave Macmillan.
2. Weil, D. N. (2012). Economic growth (3rd ed.). Prentice Hall.
3. Perkins, D. H., Radelet, S., Lindauer, D. L., & Block, S. (2012). Economics of development (7th ed.). W. W. Norton & Company.
4. Nafziger, E. W. (2012). Economic development (5th ed.). Cambridge University Press.
5. Heikkila, E. J. (2000). The economics of planning. Center for Urban Policy Research.
6. Little, I. M. D., & Mirrlees, J. A. (1969). Manual of industrial project analysis in developing countries. OECD Development Centre.

## **BEF-405: Public Finance**

### **Course Description**

This course in Public Finance is divided into two major sections: public sector expenditures and public sector revenue. The first semester focuses on the expenditure side, while the second semester covers revenue. Throughout the course, microeconomic theories, particularly consumer theory, cost theory, and market structure, are applied to analyze the expenditures of public authorities and the regulations designed to achieve desirable effects and avoid undesirable ones.

### **Course Objectives**

- To provide students with a comprehensive understanding of the public sector's role in the economy, specifically in terms of expenditures and revenue.
- To enable students to analyze the economic effects of public sector expenditures using microeconomic principles.
- To equip students with the skills necessary to evaluate public sector projects and their impact on production, distribution, and other economic variables.

### **Course Contents**

#### **1. Introduction**

- Overview of government functions
- Analysis of the recent budget
- Government's role in household and firm consumption
- Classical views on government

#### **2. Efficiency Conditions and Social Welfare Maximization**

- Consumption and production efficiency conditions
- Pareto efficiency: market mechanism vs. centralized decision-making
- Social welfare maximization

#### **3. Market Failure: Rationale for Government Intervention**

- Conflict between private and social interests

- Externalities, public goods, and imperfect competition
- Other market failures (moral hazard, asymmetric information, etc.)
- Equity in income distribution

#### **4. Public Sector Expenditures**

- Classification and growth of public expenditures
- Public expenditures in Pakistan

#### **5. Economic Effects of Public Expenditures**

- Effects on production and distribution
- Other economic effects

#### **6. Project Evaluation**

- Measuring benefits and costs
- Criteria for project selection

#### **Recommended Books**

- Brown, C. V., & Jackson, P. (1991). Public sector economics (4th ed.). Wiley-Blackwell.
- Hyman, D. N. (2013). Public finance: A contemporary application of theory to policy (11th ed.). Cengage Learning.
- Rosen, H. S., & Gayer, T. (2014). Public finance (10th revised ed.). McGraw Hill Higher Education.
- Ulbrich, H. H. (2011). Public finance in theory and practice (2nd ed.). Routledge.
- Aronson, J. R. (1985). Public finance. McGraw-Hill.
- Anderson, J. E. (2011). Public finance (2nd ed.). Cengage Learning.
- Due, J. F. (1981). Government finance: Economics of the public sector (7th ed.). Richard D. Irwin.
- Gruber, J. (2012). Public finance and public policy (4th ed.). Worth Publishers.
- Stiglitz, J. E. (2000). Economics of the public sector (3rd ed.). W. W. Norton & Company.
- Musgrave, R. A., & Musgrave, P. B. (1989). Public finance in theory and practice (5th ed.). McGraw-Hill College.

## **BEF-407: Statistics for Business and Economics**

### **Course Description**

This course introduces students to the fundamentals of descriptive statistical methods, with a particular focus on their application in business and economics. Students will learn how to collect, analyze, and interpret data, using both graphical and numerical techniques. The course emphasizes understanding key statistical concepts and their relevance to economic interpretations.

### **Course Objectives**

The objectives of this course are to:

1. Develop a strong foundation in descriptive statistical methods.
2. Enable students to effectively apply statistical techniques to business and economic data.
3. Foster the ability to interpret statistical results in an economic context.

### **Course Contents**

#### **1. Introduction**

- Key statistical concepts
- Statistical applications in business and economics
- Statistics and the computer

#### **2. Graphical and Tabular Descriptive Techniques**

- Types of data and information
- Graphical and tabular techniques for nominal data
- Graphical techniques for interval data
- Stem-and-leaf display
- Describing the relationship between two interval variables
- Describing time series data
- The art and science of graphical presentations

### **3. Numerical Descriptive Techniques**

- Measures of central location
- Measures of variability
- Measures of relative standing
- Box plots
- Skewness and its coefficient
- Measuring linear relationships
- Comparing graphical and numerical techniques
- General guidelines for exploring data

### **4. Moments, Skewness, and Kurtosis**

- Absolute moments for ungrouped and grouped data
- Raw moments for ungrouped and grouped data
- True moments for ungrouped and grouped data
- Coefficient of skewness and kurtosis using moments of distribution

### **5. Covariance, Correlation, and Regression**

- Scatter diagram
- Covariance
- Coefficient of correlation
- Rank correlation
- Two-variable linear regression models
- Interpretation of regression coefficient
- Coefficient of determination

### **6. Index Numbers**

- Simple price index
- Weighted price index



- Selecting appropriate weights for an index number
- Chained price indices
- Price index applications
- Shifting in index's Recommended period
- Quantity indices
- Composite indices

### **Recommended Books**

- Waheed, A. (2022). Statistical Analysis in Business and Economics. Royal Book Company.
- Keller, G. (2014). Statistics for Management and Economics (10th ed.). Cengage Learning.
- Lind, D. A., Marchal, W. G., & Wathen, S. A. (2018). Statistical Techniques in Business and Economics (17th ed.). McGraw-Hill Education.
- Hussain, S. M. A. (2005). Tools of Statistical Analysis. Kifayat Academy.
- Lewis, M. (2012). Applied Statistics for Economists. Routledge.
- Walpole, R. E. (1982). Introduction to Statistics (3rd ed.). Macmillan Publishing Co., Inc.

## **BEF-409: Financial Economics**

### **Course Description**

Financial Economics introduces basic financial ideas through a strong grounding in microeconomic theory and macroeconomic theory. The text explores the theoretical framework for analysing the decisions by individuals and managers of firms, an area which is coming to both financial economics and microeconomics. It also explores the interplay of these decisions on the prices of financial assets. This course assesses the undergraduate and masters-level students to better understand the principles and practical application of financial economic theory.

### **Course Topics:**

#### **1. Introduction to Financial Economics**

- Financial markets, institutions, instruments, and trading
- Time value of money and risk aversion
- Understanding financial statements and cash flows (including free cash flows)
- The principle of value maximization

#### **2. Financial Markets and Institutions**

- Financial intermediation and the economy
- Financial institutions:
- Asset securitization
- The role of financial markets in Economic development

#### **3. Finance in a Certainty World with a Perfect Capital Market**

- Consumer Financial Decisions
- Creating Wealth by Investing in Productive Opportunities
- How Investors Value Firms
- Firm Financing Decisions in a Perfect Capital Market
- Firm Investment Decisions

#### **4. Tools for Coping with Risk**

- The Microeconomic Foundations of Financial Economics
- Contingent Claims and Contingency Strategies
- Risk and Risk Management
- On Choosing Risk Measures

#### **5. Equilibrium in Capital Markets**

- Concepts of return and risk
- Portfolio optimization, diversification, and the mean variance approach

- Asset pricing
- Investment companies (hedge funds, mutual funds etc.)
- Risk-adjusted performance evaluation (including applications of Fama-French and other multifactor model)

## **6. Valuation of Financial Claims**

- Fixed income instruments
- Bond prices and yields, Duration, Convexity, and Applications
- Term structure of interest rates and yield curves
- Equity (DDM, residual income, P/E multiples, free cash flows and other valuation models)

## **7. Financial Derivatives**

- Options, futures, forwards, swaps
- Pricing of derivatives
- Hedging and risk management

## **8. Agency Problems and Financial Contracting**

- Management vs equity holders
- Large shareholders vs minority shareholders
- Shareholders vs creditors
- Firm vs government
- Financial distress costs and other agency costs
- Information asymmetry and financial signalling
- Corporate governance

## **9. Corporate Finance**

- Valuation and Capital budgeting
- Dividend policy
- IPOs: Methods of issuance and pricing
- Option features of corporate securities
- The market for corporate control: Mergers and acquisitions

## **10. International Finance**

- Markets, investment, instruments, etc.
- Parity relationships in international finance
- International portfolio diversification

## **11. Issues in Finance**

- Governance and risk management of financial institutions
- Financial markets and economic development
- Financial regulation
- Financial Development, Financial Crises, and Financial Sector Reforms
- Remittances and regional integration
- Environmental, social and governance (ESG) ratings
- Sustainable investing and Impact investing
- Climate finance and other innovative finance

- Sovereign wealth funds
- Covid-19 and other emerging topics

**Recommended books:**

Stephen F. Leroy and Jan Werner. (2014). Principles of Financial Economics: Second Edition Cambridge University Press

Recommended:

Frank J. Fabozzi, Edwin H. Neave, Guofu Zhou. (2011). Financial Economics, 1st Edition, John Wiley & Sons.

Antonio Mele. (2022). Financial Economics. The MIT Press.

## **BEF - 402: International Trade and Finance**

### **Course Description**

This course explores the theory and practice of international trade and trade-related policies. Students will analyze the gains from trade, trade patterns, income distributional consequences of trade liberalization, and the relationship between trade, investment, and economic growth. The course emphasizes the use of standard international trade models to understand modern trade policies. During weekly seminars, students will critically assess the efficacy of trade policies, considering both their intended and unintended consequences, within the context of a changing geopolitical environment.

### **Course Objectives**

- To provide a theoretical analysis of international trade and finance, supported by empirical evidence.
- To enable students to understand and analyze the current global patterns of trade and finance.
- To equip students with the skills necessary to assess the welfare effects of various trade and finance policy instruments.
- To foster problem-solving skills related to international trade and finance issues.

### **Course Contents**

#### **1. Introduction**

- Overview of international trade and finance
- Current global trade patterns and their historical context

#### **2. Gains from Trade and Trade Patterns**

- Comparative advantage and the Ricardian model
- Income distribution and gains from trade
- Protectionism and its impact

#### **3. Models of International Trade**

- The Specific Factors Model

- The Heckscher-Ohlin Model
- The Standard Trade Model

#### **4. Economics of Scale and Imperfect Competition**

- Role of economies of scale in international trade
- Market structure and trade
- Monopolistic competition and dumping

#### **5. International Factor Mobility and Trade Policy Instruments**

- International labor mobility, borrowing, and lending
- Direct foreign investment and multinational firms
- Tariffs, export subsidies, import quotas, and trade policy effects

#### **6. International Finance**

- National income and balance of payments
- Exchange rates, interest rates, and purchasing power parity
- Policy effects with floating and fixed exchange rates
- International finance issues in Pakistan

#### **Recommended Books**

- Salvatore, D. (2013). International economics (11th ed.). Wiley.
- Gerber, J. (2013). International economics (6th ed.). Prentice-Hall.
- Reuvid, J., & Sherlock, J. (2011). International trade: An essential guide to the principles and practice of export (3rd ed.). Kogan Page.
- Pilbeam, K. (2013). International finance (4th ed.). Palgrave Macmillan.
- Luk, K. W. (2011). International trade finance: A practical guide (2nd ed.). City University of Hong Kong Press.
- Krugman, P. R., Obstfeld, M., & Melitz, M. (2014). International economics: Theory and policy (10th ed.). Prentice Hall.
- Feenstra, R. C., & Taylor, A. M. (2011). International economics (2nd ed.). Worth Publishers.

## **BEF-404: Economic Development**

### **Course Description**

This course delves into the complexities of economic development, focusing on the challenges faced by developing countries. It covers both microeconomic and macroeconomic issues, including poverty, inequality, health, education, and economic policies. Students will engage with various theories and models to understand the determinants of underdevelopment and the policies that can promote economic growth and development.

### **Course Objectives**

- Introduce students to the fundamental theories of development economics.
- Enable students to critically engage with development economics literature and current issues.
- Analyze key development issues, including poverty, inequality, and human capital.
- Evaluate the impact of domestic and international policies on economic development.
- Understand the role of institutions in shaping economic outcomes.

### **Course Contents**

#### **1. An Overview of Development**

- Historical experiences and conceptual explanations of underdevelopment
- Economic growth vs. economic development
- Comparative economic development and emerging issues

#### **2. Domestic Problems and Policies**

- Poverty, inequality, and their nexus with underdevelopment
- Demographic transition and urbanization
- Human capital, health, education, and development
- Agricultural and rural development in the context of land distribution and environment

#### **3. International Problems and Policies**

- Trade, balance of payments, and development
- Debt, stabilization policies, and foreign finance

- Impact of international shocks, conflicts, and migration

#### **4. Markets and Development**

- The role of markets, credit, and trade policies in development
- Market failures and government interventions
- Property rights, technology adoption, and stabilization policies

#### **5. Institutions and Development**

- Role of political and economic institutions in development
- The impact of corruption, governance, and democracy
- Informal institutions, social networks, and social capital

#### **6. Alternative Theories of Economic Development**

- Culture Hypothesis, Geography Hypothesis, Institutions Hypothesis

#### **Recommended Books**

- Todaro, M. P., & Smith, S. C. (2011). *Economic Development* (11th ed.). Palgrave.
- Ray, D. (1998). *Development Economics*. Princeton University Press.
- Acemoglu, D., & Robinson, J. (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Publishing Group.
- Banerjee, A., & Duflo, E. (2012). *Poor Economics*. Public Affairs.
- Rahman, T. (2012). *The Class Structure of Pakistan*. Oxford University Press.
- Ahmed, V. (2017). *Pakistan's Agenda for Economic Reform*. Oxford University Press.
- Todaro, M. P., & Smith, S. C. (2010). *Economic development* (11th ed.). Addison Wesley Longman.
- Naqvi, S. N. H. (2010). *The evolution of development policy: A reinterpretation* (pp. 1-37). Pakistan Institute of Development Economics (PIDE).



## **BEF-406: Fiscal Management**

### **Course Description**

This course on Fiscal Management is designed to provide students with a comprehensive understanding of the principles and practices of fiscal management in both public and private sectors. It covers critical concepts such as financial policy, budgeting, debt management, and local government autonomy. Students will explore the various issues and challenges associated with fiscal management, enhancing their ability to make informed decisions in financial planning and control.

### **Course Objectives**

Upon completion of this course, students will be able to:

- Understand the key concepts and importance of fiscal management.
- Analyze fiscal matters related to local government autonomy and revenue administration.
- Evaluate the advantages, disadvantages, and limitations of budgeting.
- Apply the principles of budget control in managing financial resources.
- Assess debt management issues and explore strategies for effective debt reduction.

### **Course Contents**

#### **1. Concept, Practice, Issues, and Problems of Fiscal Management**

- 1.1 Public and Private Management
- 1.2 Fiscal Management: Meaning and Importance
- 1.3 Other Basic Concepts of Fiscal Management
- 1.4 Financial Policy, Planning, and Control Functions

#### **2. Fiscal Matters Mandated at Local Government Autonomy**

- 2.1 Revenue Administration
- 2.2 Sources of Funds

#### **3. Budgeting, Accounting of Financial Resources, Issues, and Problems**

- 3.1 Advantages and Disadvantages of Budgeting

- 3.2 Limitations of Budgets
- 3.3 Budget Control
- 3.4 Basic Principles of Budgeting

#### **4. Debt Management**

- 4.1 Problems and Causes of Debt Management
- 4.2 Strategies for Debt Reduction

#### **Recommended Books**

1. von Hagen, J. (n.d.). Budgeting institutions and public spending. Washington, DC: International Monetary Fund.
2. International Monetary Fund & World Bank. (2014). Guideline for public debt management. Washington, DC: International Monetary Fund.
3. Brixi, H. P. (2002). Addressing contingent liabilities and fiscal risk (1st ed.). Washington, DC: World Bank.
4. Shah, A. (Ed.). (2005). Fiscal management. Washington, DC: World Bank.
5. Andrews, M., & Shah, A. (n.d.). Citizen-central governance. Washington, DC: World Bank.

## **BEF-408: Statistics for Business and Economics**

### **Course Description**

This course provides an introduction to inferential statistical methods, building on the descriptive techniques covered in Statistics I. The course focuses on probability concepts, probability distributions, sampling methods, estimation, hypothesis testing, and regression analysis, with a strong emphasis on economic interpretation and application.

### **Course Objectives**

The objectives of this course are to:

1. Develop an understanding of basic statistical inference procedures.
2. Emphasize the economic interpretation of statistical results.
3. Apply statistical methods to economic data for decision-making and analysis.

### **Course Contents**

#### **1. Probability Concepts**

- Basic concepts of probability
- Approaches to assigning probability
- Joint probability
- Marginal probability
- Conditional probability
- Principles of counting

#### **2. Probability Distributions and Mathematical Expectations**

- Random variables
- Different types of probability distributions and mathematical expectations
- Discrete probability distribution
- Mean, variance, and standard deviation of a discrete probability distribution
- Binomial and Poisson distribution

- Uniform distribution
- Normal distribution and standard normal distribution
- Student t-distribution
- Chi-squared distribution
- F-distribution

### **3. Sampling and Sampling Distribution**

- Sampling methods
- Sampling distribution of sample mean
- Central limit theorem
- Sampling distributions of the difference between two means

### **4. Estimation and Confidence Interval**

- Introduction to estimation
- Point estimation
- Properties of good estimators
- Interval estimation
- Confidence interval estimate of mean and variance
- Sample size determination

### **5. Hypothesis Testing**

- Introduction to hypothesis testing
- One-tailed versus two-tailed tests
- P-value in hypothesis testing
- Tests concerning a population mean:
  - When population standard deviation is known
  - When population standard deviation is unknown
- Comparing two population means:

- When population standard deviations are known
- When population standard deviations are unknown (Pooled t-test and unequal standard deviation t-test)

## **6. Analysis of Variance**

- Comparing two population variances (F-test)
- Comparing means of two or more populations (ANOVA test)

## **7. Multiple Linear Regression and Correlation Analysis**

- Multiple regression model
- Multiple standard error of estimate
- Interpretation of multiple regression coefficients
- Coefficient of multiple determination
- ANOVA table and global significance test
- Evaluating individual regression coefficients
- Partial correlation

## **8. Time Series Analysis**

- Components of time series
- Moving average
- Linear and nonlinear trends
- Seasonal variations

## **Recommended Books**

- Waheed, A. (2022). Statistical Analysis in Business and Economics. Royal Book Company.
- Keller, G. (2014). Statistics for Management and Economics (10th ed.). Cengage Learning.
- Lind, D. A., Marchal, W. G., & Wathen, S. A. (2018). Statistical Techniques in Business and Economics (17th ed.). McGraw-Hill Education.
- Hussain, S. M. A. (2005). Tools of Statistical Analysis. Kifayat Academy.
- Lewis, M. (2012). Applied Statistics for Economists. Routledge.
- Walpole, R. E. (1982). Introduction to Statistics (3rd ed.). Macmillan Publishing Co., Inc.
- Salvatore, D. (2002). Statistics and Econometrics (2nd ed.). McGraw-Hill Schaum Series.
- Gujarati, D. N. (2006). Essentials of Econometrics (3rd ed.). McGraw-Hill

## **BEF-410: Analysis of Pakistan's Economy**

### **Course Description**

This course provides an in-depth overview of the economic issues facing Pakistan. It begins with an analysis of national income accounts and offers a detailed examination of all major sectors of the economy. The course also addresses significant socio-economic challenges, including poverty, inflation, and unemployment. The final section highlights contemporary challenges and the evolving economic landscape in Pakistan.

### **Course Objectives**

The primary objective of this course is to equip students with a comprehensive understanding of the socio-economic issues prevalent in Pakistan. By the end of the course, students will be able to:

1. Understand key features of socio-economic problems in Pakistan and explore potential solutions.
2. Analyze the emergence of economic issues within the context of Pakistan's economy.
3. Evaluate various programs and strategies aimed at addressing economic challenges in Pakistan.

### **Course Contents**

#### **1. Quick Review of National Income Accounts**

- GDP (Nominal and Real) and GNP
- Measure of Inflation and Employment
- Measures of Social Welfare
- Beyond GDP
  - Basic Needs Approach
  - HDI Approach

#### **2. Review of Alternative Models of Economic Management**

- Markets or Liberal Capitalism
- Socialism or State Capitalism
- Social Democracy or Mixed Economy
- Islamic Economics or Islamic Capitalism
- Pakistan's Models of Economic Management

### **3. Agricultural Sector of Pakistan**

- 1947-58: The Neglected Agriculture Sector
- The Green Revolution and its Impacts
- Evaluation of Green Revolution as a Development Strategy
- Critical Analysis of Land Reforms in Pakistan
- Pakistan's Agricultural Sector: Historical Perspectives and Implications

### **4. Industrial Sector of Pakistan**

- Composition of Manufacturing Sector
- Process of Industrialization from 1947-58
- The Development Decade of Ayub—1958-68
- The Experimental Regime of Bhutto—1972-77
- Zia Regime and back to the Basics—1977-88
- Industry after Structural Adjustment Program—1988-onwards
- Industrial Development in Pakistan: Factors and Development Programs

### **5. Fiscal and Monetary Policies and Inflation in Pakistan**

- Fiscal Developments
  - Structure and Trends in Revenue
  - Structure of Expenditures and Trends of Fiscal Deficit
  - Financing of Fiscal Deficit
  - New NFC Award and Medium-Term Budgetary Framework
- Monetary Policy Management and Inflation in Pakistan
  - Understanding Monetary Data
  - Monetary Management
  - Financial Sector Reforms
  - Salient Features of Banking Sector
- Inflation and its Causes in Pakistan



## **6. Public and External Debts in Pakistan**

- Difference between Public and External Debts
- Is Debt Creation Always Bad?
- Concerns Regarding Pakistan's Fiscal Deficit
- Reforms to Bring Debt under Control

## **7. Structural Adjustment Program (SAP) and Pakistan**

- Globalization and Export of Development Thinking
- Composition of SAP
- Implementation of SAP in Pakistan
- Evaluation of the Results of SAP
- Did Pakistan Need to Go for SAP?
- Why Does Pakistan Adopt IMF Programs?

## **8. Performance of Pakistan on Foreign Economic Front**

- Understanding BOP Accounts
- Trends in BOP
- Composition of Exports and Imports
- Historical Directions of Pakistan's Trade Policy Regimes
- Impacts of Structural Adjustment Program on Trade Policy
- Dealing with Globalization and WTO
- Impacts of Globalization on Poverty and other Socio-economic Indicators in Pakistan
- Exchange Rate Regimes in Pakistan
- The Weakening Currency of Pakistan
- Why Can't Muslims Adopt a Common Currency?

## **9. Social Sector in Pakistan**

- Health Sector and its Issues
- Education and its Issues
- Gender Inequality
- Regional Inequalities
- Structure of Population
- Population: Asset or Liability?
- Urbanization and Housing Problems
- Infrastructure Development
- Poverty and Income Distribution
- Measurement Issues of Poverty and Income Inequality
- Trends in Poverty and Income Distribution
- The Implications of Poverty and Income Disparity
- Growth and Poverty?
- Analysis of Poverty Alleviation Strategies

## **10. Recent Challenges Facing Pakistan's Economy**

- Law and Order Situation
- Energy Crises
- Rising Circular Debt

### **Text and Recommended Books**

- Ahmed, V. (2017). Pakistan's Agenda for Economic Reform. Oxford University Press.
- Economic Survey of Pakistan (various issues). Federal Bureau of Statistics, Government of Pakistan.
- Hussain, I. (2007). Pakistan: The Economy of an Elite State. Oxford University Press.
- Rashid, A., & Barki, S. J. (2016). Pakistan Moving the Economy Forward. Oxford University Press.
- Saeed, K. A. (Latest edition). Economy of Pakistan. Oxford University Press.
- Zaidi, A. (Latest edition). Issues in Pakistan's Economy. Oxford University Press.

## **BEF-501: Microeconomics: Theory & Application**

### **Course Description**

This course is designed to provide students with a comprehensive understanding of the theoretical concepts and applications of microeconomics as they relate to economics and finance. The first part of the course focuses on fundamental microeconomic concepts, while the second part delves into topics specific to financial theory, including the micro-foundations of business and finance. A background in economics and familiarity with graphs, linear and non-linear equations, and calculus (including first and second derivatives) are prerequisites for this course.

### **Course Objectives**

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

- Analyze the behavior of economic agents using working tools of economic analysis.
- Understand the foundations of finance theory.
- Apply basic economic principles to a range of finance-related issues.

### **Course Contents**

#### **A. Introduction**

- Working tools of economic analysis.
- Subject matter of economics; Economic problems; Circular flow of economic activity; Basic concepts.
- The nature of economic analysis; The Rationality Assumption; Economic explanations; Scope of economic analysis.

#### **B. Review of Microeconomic Theories**

- Consumer theory: Budget constraint, utility, indifference curves, consumer equilibrium, elasticity of demand, market analysis, consumer surplus.
- Producer theory: Production, cost, markets, competitive and imperfectly competitive markets.

#### **C. Intertemporal Choice**

- Budget constraint, pRecommended for consumption, comparative statics, Slutsky equation, inflation, present value.

## **D. Asset Markets**

- Rates of return, arbitrage, present value, asset differences, assets with consumption returns, taxation of asset returns, market bubbles.

## **E. Uncertainty**

- Contingent consumption, utility function and probabilities, expected utilities, risk aversion, risk spreading, role of stock market.

## **F. Risky Assets**

- Mean-variance utility, measuring risk, counterparty risk, market equilibrium for risky assets, returns adjustment.

## **G. Auctions**

- Auction classification, auction design, revenue, number of bidders, problems with auctions, stable marriage problem, mechanism design.

## **H. Behavioral Economics**

- Framing effects in consumer choice, uncertainty, time, strategic interaction, social norms, assessment of behavioral economics.

## **I. Asymmetric Information**

- Economics of search, market for lemons, quality choice, adverse selection, moral hazard, market signaling, principal-agent problem.

## **Recommended Books**

- Besanko, D. A., & Braeutigam, R. L. (2014). *Microeconomics* (5th ed.). John Wiley & Sons, Inc.
- Varian, H. R. (2014). *Intermediate Microeconomics* (9th ed.). W. W. Norton & Company.
- Snyder, C., & Nicholson, W. (2008). *Microeconomic Theory: Basic Principles and Extensions* (10th ed.). Thomson South-Western.
- Gravelle, H., & Rees, R. (2008). *Microeconomics* (3rd ed.). Pearson.
- Gilboa, I. (2011). *Making Better Decisions: Decision Theory in Practice*. Wiley-Blackwell.
- Koutsoyiannis, A. A. (1994). *Microeconomic Theory* (3rd ed.). Prentice Hall.
- Nicholson, W. (2010). *Microeconomic Theory: Basic Principles & Extensions* (11th ed.). South-Western Cengage Learning.

## **BEF – 503: Monetary Economics**

### **Course Description**

This course offers a structured analysis of the monetary framework within an economy. It explores the functioning of monetary systems and financial institutions, with a focus on the economic effects of changes in financial instruments. The course also provides an overview of financial systems and studies various markets in the context of Pakistan, evaluating the relationship between different monetary variables.

### **Course Objectives**

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

- Analyze the structure and effects of the monetary framework in an economy.
- Evaluate the impact of financial instruments on economic variables.
- Understand the relationship between different monetary variables in the context of Pakistan.

### **Course Contents**

#### **1. Introduction**

- Financial markets, bond market, stock market, foreign exchange market, banking and financial institutions, structure of the financial system, financial innovation, money, fiscal policy, monetary policy, money and business cycles, aggregate output and income, real versus nominal magnitudes, aggregate price level, growth rates, inflation rate.

#### **2. Overview of the Financial System**

- Function and structure of financial markets, internationalization of financial markets, financial intermediaries, importance to securities markets, regulation of financial system.

#### **3. Money**

- Meaning and functions of money, evolution of payment systems, transition in exchange modes, measuring money.

#### **4. Interest Rates**

- Measuring interest rates, real vs. nominal interest rates, determinants of asset demand, supply and demand in bond and money markets, equilibrium interest rates, effects of inflation and business cycles, liquidity recommended framework, forecasting interest rates, risk, term structure, yield curves.

## **5. The Stock Market, Theory of Rational Expectations, and Efficient Market Hypothesis**

- Computing stock prices, security price setting, rational expectations theory, efficient markets hypothesis, evidence on market efficiency.

## **6. Economic Analysis of Financial Structure**

- Financial structure globally, asymmetric information, lemons problem, financial development, economic growth, financial crises.

## **7. Banking and Management of Financial Institutions**

- Bank balance sheets, basic banking principles, bank management strategies, credit risk, interest-rate risk, off-balance-sheet activities.

## **8. Banking Industry**

- Structure and competition, historical development, financial innovation, banking industry evolution, structure of Pakistan's banking industry, comparison with global banking structures, separation of financial services, international banking.

## **9. Economic Analysis of Banking Regulation**

- Asymmetric information and regulation, electronic banking challenges, international banking regulation, global banking crises.

## **10. Non-bank Finance and Financial Derivatives**

- Insurance, pension funds, money market mutual funds, hedge funds, government financial intermediation, securities market operations, new securities issues, hedging with financial derivatives.

### **Recommended Books**

- McCallum, B. T. Monetary Economics: Theory and Policy. Macmillan Publishing Company.

- Walsh, C. E. Monetary Theory and Policy. The MIT Press.

- Pierce, D. G., & Tysome, P. J. (1985). Monetary Economics: Theories, Evidence and Policy (2nd ed.). Butterworth-Heinemann.

- Mishkin, F. S. (2009). Monetary Policy Strategy. The MIT Press.
- Mishkin, F. S. (2012). Economics of Money, Banking, and Financial Markets (10th ed.). Prentice Hall.
- Bain, K., & Howells, P. (2009). Monetary Economics: Policy and its Theoretical Basis (2nd ed.). Palgrave Macmillan.
- Harris, L. (1984). Monetary Theory. McGraw-Hill.
- De Grauwe, P. (2012). Economics of Monetary Union (9th ed.). Oxford University Press.
- Smith, W. L., & Teigen, R. L. (1974). Readings in Money, National Income and Stabilization Policy (3rd ed.). R. D. Irwin.

## **BEF - 505: Financial Accounting**

### **Course Description:**

This course provides students with foundational knowledge and skills in financial accounting. It emphasizes the understanding and application of financial accounting information in decision-making processes. The course covers essential accounting concepts, procedures, and the preparation and analysis of financial statements.

### **Course Objectives:**

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

- Understand the accounting equation and differentiate between accounting and finance.
- Apply the accounting cycle, including the preparation of general journals, ledgers, trial balances, income statements, and balance sheets.
- Implement inventory valuation and account for various assets.
- Prepare and interpret cash flow statements and understand depreciation of plant, property, and equipment.
- Analyze financial statements using ratio analysis and understand accounting for partnerships and corporations.

### **Course Contents:**

#### **1. Introduction to Accounting:**

- Accounting equation
- Difference between accounting and finance

#### **2. Accounting Cycle:**

- General Journal
- Ledger
- Trial balance
- Income statement
- Balance sheet

#### **3. Inventory Valuation & Accounting Systems:**



- Inventory valuation methods
- Accounting for assets

#### **4. Receivables & Notes:**

- Valuation of accounts receivable
- Notes receivable

#### **5. Cash Flow Statement:**

- Preparation and analysis

#### **6. Plant, Property & Equipment:**

- Depreciation methods

#### **7. Partnership & Corporate Accounting:**

- Accounting for partnerships
- Accounting for corporations
- Investment in marketable securities

#### **8. Financial Statement Analysis:**

- Ratio analysis
- Interpretation of financial statements

#### **Recommended Books:**

- Meigs, R. F., & Meigs, W. B. (Latest Edition). Principles of Accounting. McGraw Hill.
- Needles, B. E., Anderson, H. R., & Caldwell, J. C. (Latest Edition). Principles of Accounting.
- Wood, F. (Latest Edition). Frank Wood's Business Accounting. Pitman Publishing.

## **BEF - 507: Quantitative Methods for Economics & Finance**

### **Course Description:**

This course introduces students to quantitative methods essential for economics and finance. It focuses on developing analytical skills and the application of quantitative techniques in economic and financial decision-making. The course covers topics in linear algebra, differential calculus, data analysis, probability, sampling, hypothesis testing, and forecasting methods.

### **Course Objectives:**

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

- Apply linear algebra and differential calculus to solve economic and financial problems.
- Collect, analyze, and present data using various statistical methods.
- Understand and apply probability theories and distributions in decision-making.
- Perform sampling techniques and hypothesis testing using Z-tests, t-tests, and Chi-square tests.
- Utilize forecasting methods such as correlation, regression, and time series analysis in business contexts.

### **Course Contents:**

#### **1. Elements of Linear Algebra:**

- Linear and non-linear equations
- Linear programming
- Applications in economics and finance

#### **2. Differential Calculus:**

- Concept of slope and derivative
- Maxima and minima with business applications
- Non-linear optimization

#### **3. Data Collection and Analysis:**

- Collection and presentation of data
- Primary and secondary data

- Measures of central tendency and dispersion

#### **4. Probability and Probability Distributions:**

- Basic concepts of probability
- Addition, multiplication, and Bayes' theorems
- Binomial, Poisson, and normal distributions

#### **5. Sampling and Hypothesis Testing:**

- Sampling methods
- Hypothesis testing: Z-test, t-test, Chi-square test

#### **6. Forecasting Methods:**

- Business forecasting
- Correlation and regression (two variables)
- Time series components
- Measures of trend, least squares method

#### **Recommended Books:**

- Holden, K., & Pearson, A. W. (Latest Edition). *Introductory Mathematics for Economics*. M.C. Milan Press, London.
- Chiang, A. C., & Wainwright, K. (2005). *Fundamental Methods of Mathematical Economics* (4th ed.). McGraw Hill Publishing Company.
- Wonnacott, H. T., & Wonnacott, R. J. (Latest Edition). *Introductory Statistics for Business and Economics*. John Wiley & Sons.
- Lind, D. A., Marchal, W. G., & Wathen, S. A. (2009). *Statistical Techniques in Business and Economics*. McGraw-Hill.
- Walpole, R. E. (1990). *Introduction to Statistics*. Macmillan Publishing Co.

## **BEF-509: Business Management**

### **Course Description:**

This course introduces students to the fundamental concepts and principles of business management. It focuses on the four key management functions: planning, organizing, leading, and controlling. Students will explore decision-making processes, organizational behavior, leadership styles, and the impact of management on organizational performance. The course combines theoretical frameworks with practical applications in business scenarios.

### **Course Topics:**

#### **1. Introduction to Business Management**

- Overview of business management and its evolution
- The role of managers in organizations
- Levels of management (strategic, tactical, operational)

#### **2. Management Theories and Approaches**

- Classical management theories (Taylor, Fayol, Weber)
- Human relations movement and behavioral approaches
- Contemporary management theories (systems theory, contingency approach)

#### **3. Planning in Management**

- Importance of planning in business
- Types of planning (strategic, tactical, operational)
- Developing goals and objectives
- SWOT analysis

#### **4. Decision-Making in Management**

- The decision-making process
- Types of decisions (programmed and non-programmed)
- Decision-making tools and techniques
- Group vs. individual decision-making

#### **5. Organizing in Management**

- Organizational structure and design
- Types of organizational structures (functional, divisional, matrix)
- The role of authority, responsibility, and delegation
- Organizational culture and change management

#### **6. Human Resource Management**

- Recruitment, selection, and training
- Performance management and employee development
- Motivation theories (Maslow, Herzberg, McGregor)
- Leadership and employee motivation techniques

## **7. Leadership in Management**

- Leadership vs. management
- Leadership styles (autocratic, democratic, transformational)
- Theories of leadership (trait theory, situational leadership, contingency theory)
- The role of emotional intelligence in leadership

## **8. Controlling in Management**

- The control process in management
- Types of control (feedforward, concurrent, feedback)
- Tools for controlling performance (budgets, balanced scorecard, benchmarking)
- Managing performance and corrective actions

## **9. Organizational Behavior and Culture**

- Understanding organizational behavior (OB)
- The role of personality, attitudes, and perceptions in OB
- Group dynamics and team behavior
- Organizational culture and its impact on management

## **10. Motivation in the Workplace**

- Theories of motivation (Vroom's Expectancy Theory, Goal-setting Theory, Equity Theory)
- Techniques to motivate employees
- The role of rewards and recognition
- Managing job satisfaction and work-life balance

## **11. Strategic Management**

- The strategic management process
- Developing competitive strategies (Porter's Five Forces, Value Chain Analysis)
- Business-level vs. corporate-level strategies
- The role of innovation in strategic management

## **12. International Business Management**

- The impact of globalization on management
- Managing cross-cultural teams
- Global strategies and market entry modes
- International trade theories and policies

## **13. Business Ethics and Corporate Social Responsibility (CSR)**

- Ethical issues in management
- Corporate governance and ethical leadership
- Corporate social responsibility (CSR) and its impact on society
- Sustainability and environmental management

### **TEXTBOOKS:**

1. Certo, S. C., & Certo, T. (2020). *Modern Management: Concepts and Skills* (15th ed.). Pearson.

2. **Griffin, R. W.** (2022). *Fundamentals of Management* (10th ed.). Cengage Learning.

**RECOMMENDED BOOKS:**

1. **Bateman, T. S., & Snell, S. A.** (2019). *Management: Leading & Collaborating in a Competitive World* (14th ed.). McGraw-Hill Education.
2. **Mullins, L. J.** (2019). *Management and Organizational Behavior* (12th ed.). Pearson.
3. **Koontz, H., & Weihrich, H.** (2010). *Essentials of Management: An International Perspective* (8th ed.). McGraw-Hill Education.
4. **Mintzberg, H.** (2009). *Managing* (1st ed.). Berrett-Koehler Publishers.
5. **Certo, S. C., & Certo, T.** (2020). *Modern Management: Concepts and Skills* (15th ed.). Pearson.
6. **Kinicki, A., & Williams, B.** (2020). *Management: A Practical Introduction* (9th ed.). McGraw-Hill Education.
7. **Robbins, S. P., & Coulter, M.** (2020). *Management* (15th ed.). Pearson.

\* Additional journal articles and empirical studies will be provided throughout the course.

## **BEF-511: Portfolio Management**

**Course Description:** This course provides an in-depth understanding of portfolio management principles and practices. It covers key concepts in constructing and managing investment portfolios, including asset allocation, risk management, performance evaluation, and the application of various investment strategies. Students will learn to apply theoretical models to real-world scenarios and develop skills necessary for effective portfolio management.

### **Course Objectives:**

1. To understand the fundamental principles of portfolio management and the role of portfolios in financial planning.
2. To analyze and apply asset allocation techniques to construct diversified investment portfolios.
3. To evaluate and manage portfolio risk and return.
4. To apply performance measurement and evaluation techniques to assess portfolio performance.
5. To explore various investment strategies and their applications in different market conditions.

### **Course Contents:**

#### **Week 1: Introduction to Portfolio Management**

- Definition and Importance of Portfolio Management
- Historical Overview and Evolution of Portfolio Management
- Objectives and Constraints in Portfolio Management

#### **Week 2: Investment Fundamentals**

- Types of Investments (Stocks, Bonds, Mutual Funds, ETFs)
- Risk and Return Characteristics
- Investment Process and Decision Making

#### **Week 3: Portfolio Theory and Asset Allocation**

- Modern Portfolio Theory (MPT)
- Efficient Frontier and Capital Market Line
- Asset Allocation Strategies and Techniques

#### **Week 4: Risk Management in Portfolios**

- Types of Risk (Systematic vs. Unsystematic Risk)
- Risk Measurement Tools (Standard Deviation, Beta)
- Hedging and Diversification Strategies

#### **Week 5: Portfolio Construction and Optimization**

- Constructing Portfolios Using MPT
- Optimization Techniques (Mean-Variance Optimization)
- Constraints and Considerations in Portfolio Construction

#### **Week 6: Performance Evaluation and Measurement**

- Performance Metrics (Sharpe Ratio, Alpha, Beta)
- Benchmarking and Performance Attribution
- Tools and Techniques for Performance Evaluation

### **Week 7: Behavioral Finance and Investment Strategies**

- Behavioral Biases and Their Impact on Investment Decisions
- Common Investment Strategies (Value vs. Growth, Active vs. Passive)
- Market Timing and Stock Selection

### **Week 8: Advanced Portfolio Management Techniques**

- Factor Models and Risk Premia
- Multi-Factor Models (e.g., Fama-French Model)
- Tactical Asset Allocation and Dynamic Strategies

### **Week 9: Real-World Applications and Case Studies**

- Case Studies in Portfolio Management
- Application of Theoretical Models to Practical Scenarios
- Discussion of Recent Trends and Developments

### **Week 10: Portfolio Management in Practice**

- Portfolio Management for Different Investor Types (Individual, Institutional)
- Regulatory and Ethical Considerations
- Future Directions and Emerging Trends in Portfolio Management

### **Recommended book**

- *Investment Analysis and Portfolio Management* by Frank K. Reilly and Keith C. Brown (2023 Edition)  
South Western Cengage Learning



## **BEF-502: Macroeconomics: Theory and Application**

### **Course Description:**

This course explores fundamental macroeconomic concepts, focusing on economic growth, unemployment, and inflation. It is structured into three main parts: an introduction to macroeconomic models and measurement, an examination of economic growth and institutions, and an analysis of macroeconomic policies.

### **Course Objectives:**

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

- Understand key macroeconomic concepts and models.
- Measure and analyze macroeconomic variables such as GNP and national income.
- Evaluate different theories of economic growth and their policy implications.
- Analyze consumption functions and factors influencing consumption.
- Compare classical and Keynesian macroeconomic systems and their relevance.
- Examine the relationship between inflation, output, and unemployment.
- Apply macroeconomic policies in both closed and open economies.

### **Course Contents:**

#### **1. Introduction to Basic Macroeconomic Concepts:**

- Definition and key concepts
- Introduction to macroeconomic models
- Fundamental relationships and macroeconomic variables
- Leading schools of thought

#### **2. Measurement of Macroeconomic Variables:**

- National income accounting
- Concepts of GNP and national income
- Methods of measuring GNP

- Real vs. nominal GNP
- Construction of different types of price deflators

### **3. Long-Run Economic Growth:**

- Sources of economic growth
- Growth dynamics: The Solow Model
- Government policies to raise long-run living standards

### **4. Consumption Function:**

- Absolute income hypothesis
- Relative income hypothesis
- Permanent income hypothesis
- Life cycle hypothesis
- Reconciliation of various hypotheses
- Other factors influencing consumption: interest rates, prices, expectations, wealth, and income distribution

### **5. Classical Macroeconomic System:**

- Say's law and quantity theory of money
- Real theory of money and interest
- Wage and price flexibility
- Aggregate supply and demand schedules
- Analysis of real and monetary disturbances
- Role of fiscal policy
- Analysis of unemployment with money wages

### **6. Keynesian Macroeconomic System:**

- Keynesian Criticism:

- Keynes' criticism of Say's law and quantity theory of money
- Real theory of interest, wages, and price flexibility
- Keynes' view of the labor market
- Theory of Aggregate Demand:
  - Simple Keynesian model
  - Components of aggregate demand (C, I, G)
  - Determinants of equilibrium income and employment
  - Comparative static and fiscal stabilization policy
  - Keynesian open economy macroeconomic model
- Goods and Money Market:
  - Role of money
  - Keynesian theory of money demand and money supply
  - Effects of changes in money supply
  - Simultaneous equilibrium in goods and money markets
  - Derivation, slope, and shifting of IS-LM curves
  - Properties of IS-LM equilibrium and policy effects

### **7. Investment Function:**

- Private investment, gross and net investment
- Induced and business fixed investment
- Marginal efficiency of capital and investment
- Correspondence principle (positive sloped IS curve and policy implications)

### **8. Aggregate Demand in the Closed Economy:**

- Implications of classical and Keynesian basics on the IS-LM framework
- Neo-classical synthesis and monetarism

### **9. Inflation, Output, and Unemployment:**

- Theories of inflation: cost-push and demand-pull
- Role of expectations
- Trade-off between inflation and unemployment in the short and long run
- Okun's Law and stabilization policies

#### **10. Exchange Rates, Business Cycles, and Macroeconomic Policy in the Open Economy:**

- Determination of exchange rates by demand and supply
- IS-LM model in an open economy
- Macroeconomic policy in an open economy with fixed and flexible exchange rates

#### **Recommended Books:**

- Froyen, R. T. (2012). *Macroeconomics: Theories and Policies* (10th ed.). Pearson.
- Abel, A. B., Bernanke, B. S., & Croushore, D. (2011). *Macroeconomics* (7th ed.). Addison Wesley.
- Dornbusch, R., Fischer, S., & Startz, R. (2010). *Macroeconomics* (11th ed.). McGraw Hill.
- Mankiw, G. (2007). *Macroeconomics* (6th ed.). Worth Publishers.
- Mishkin, F. S. (2012). *Macroeconomics: Policy and Practice*. Pearson Education Inc.

## **BEF-504: Decision Science**

### **Course Description:**

This course introduces an organized approach to problem-solving and essential quantitative methods for business decision-making. Students will learn to analyze complex situations, apply decision models, and communicate results effectively. The course aims to develop skills for making informed decisions by exposing students to various decision science techniques.

### **Course Objectives:**

- Develop an understanding of decision analysis and its application in business.
- Learn to apply probability, regression analysis, and optimization techniques to solve real-world business problems.
- Gain proficiency in using game theory and other quantitative methods for decision-making.
- Enhance the ability to translate quantitative results into actionable business strategies.

### **Course Content:**

#### **- Introduction:**

Introduction to Decision Analysis.

#### **- Probability and Decision Making under Uncertainty:**

Probability distributions: Normal, Binomial, Poisson, and Exponential. Elements of decision analysis: Uncertainty, probability, expected value, decision trees, expected utility, and risk aversion.

#### **- Regression Analysis and Time Series Forecasting:**

Graphing relationships, correlations, simple and multiple regression, inference about regression coefficients, forecasting methods, regression-based trend models, random walk model, moving averages, exponential smoothing, and seasonal models.

#### **- Optimization:**

Introduction to optimization, systems of linear inequalities, linear programming, simplex method, dual problems, sensitivity analysis, and applications of linear programming.

## **- Game Theory:**

Introduction, language of games, minimax criterion, pure and mixed strategy games, dominance.

### **Recommended Books:**

1. Render, B., Stair, R. M. Jr., Hanna, M. E., & Hale, T. S. (2018). Quantitative Analysis for Management (13th ed.). Pearson.
2. Albright, S. C., & Winston, W. L. (2015). Business Analytics: Data Analysis and Decision Making (5th ed.). Cengage Learning.
3. Lind, D. A., Marchal, W. G., & Wathen, S. A. (2012). Statistical Techniques in Business and Economics (15th ed.). McGraw-Hill.
4. Barnett, R. A., Ziegler, M. R., & Byleen, K. E. (2000). Applied Mathematics for Business, Economics, Life Sciences and Social Sciences (7th ed.). Pearson.
5. Dorfman, R., Samuelson, P. A., & Solow, R. M. (1958). Linear Programming and Economic Analysis. McGraw Hill.

## **BEF-506: Managerial Accounting**

### **Course Description:**

This course introduces the use of accounting information for internal management decision-making. The focus is on developing the ability to interpret and use accounting data rather than preparing it, thereby empowering managers to make informed decisions based on financial insights.

### **Course Objectives:**

- Understand the role of managerial accounting in the business environment.
- Analyze cost behavior, budgeting, and cost control techniques.
- Apply managerial accounting tools for decision-making, including relevant costing and linear programming.
- Evaluate the effectiveness of various managerial accounting practices in real-world scenarios.

### **Course Contents:**

- **Managerial Accounting and the Business Environment:**

Cost terms, concepts, and classifications.

- **System Design:**

Job order costing (excluding journal entry preparation), cost-volume-profit relationships.

- **Variable Costing:**

A tool for management budgeting.

- **Standard Costs and Overhead Analysis:**

Techniques for control and performance measurement.

- **Reporting for Control:**

Segmented reporting, transfer pricing, measuring managerial and cost of quality.

- **Relevant Costs for Decision Making:**

Concepts and applications in business decisions, including linear programming.

**- Program Evaluation and Review Techniques (PERT):**

Tools for project management and decision analysis.

**Recommended Books:**

1. Helmkamp, J. G. (2001). *Managerial Accounting* (2nd ed.). Matz.
2. Meigs, R. F., & Meigs, W. B. (2011). *Accounting for Business Decision* (12th ed.). McGraw-Hill.
3. Williams, Haka, Bettner. (Latest edition). *Financial & Managerial Accounting*. McGraw-Hill.
4. Garrison, R. H., Noreen, E. W., Brewer, P. C., & Chesley, G. R. (2012). *Managerial Accounting* (9th Canadian ed.). McGraw-Hill Ryerson.



## **BEF-508: Financial Institutions and Markets**

### **Course Description:**

This course provides an overview of global and domestic financial systems, focusing on how financial markets function and the role of financial institutions. The course covers economic and finance concepts related to financial markets, interest rates, and risk management, with an emphasis on the challenges faced by financial intermediaries.

### **Course Objectives:**

- Understand the structure and functions of financial markets.
- Analyze the role of financial institutions in promoting financial intermediation.
- Explore the determination of interest rates and the impact of monetary policy.
- Apply risk management techniques in the context of financial institutions.

### **Course Contents:**

#### **- Introduction to Financial Markets:**

Overview and importance of financial markets.

#### **- Function and Structure of Financial Markets:**

Types of financial markets and their roles in the economy.

#### **- Money Markets and Instruments:**

Short-term financial instruments and their market operations.

#### **- Determination of Interest Rates:**

Factors influencing interest rates in financial markets.

#### **- Central Bank and Monetary Policy:**

Role of central banks in regulating financial markets.

**- Institutions in Financial Markets:**

Depository and non-depository institutions and their functions.

**- Foreign Exchange Markets:**

Mechanisms and operations of currency exchange markets.

**- Determination of Exchange Rates:**

Factors affecting exchange rates in different markets.

**- Capital Markets and Instruments:**

Long-term financial instruments and their market dynamics.

**- Derivatives:**

Overview of futures, forwards, options, and their pricing models.

**- Capital Asset Pricing Model (CAPM):**

Theory and application of CAPM in financial analysis.

**- Efficient Markets and Theory of Rational Expectations:**

Economic concepts related to market efficiency and expectations.

**Recommended Books:**

1. Mishkin, F. S. (2004). *The Economics of Money, Banking, and Financial Markets* (7th ed.). Pearson.
2. Hull, J. C. (2008). *Options, Futures, and Other Derivatives* (7th ed.). Pearson.
3. Fabozzi, F. J., & Modigliani, F. (1996). *Capital Markets* (2nd ed.). Prentice Hall.
4. Ritter, L. S., & Peterson, R. L. (2010). *Financial Institutions and Financial Markets* (9th ed.). McGraw-Hill.
5. Saunders, A., & Cornett, M. M. (2012). *Financial Markets and Institutions* (2nd ed.). McGraw-Hill.

## **BEF-510: Corporate Finance**

### **Course Description:**

This introductory course in financial management focuses on the fundamentals of corporate financial decision-making, with special emphasis on investment, financing, and dividend distribution. Building upon concepts from accounting, economics, and quantitative analysis, the course equips students with conceptual frameworks and specialized tools to solve real-world financial problems at both individual and corporate levels. The course balances theoretical knowledge with practical applications, covering topics such as financial mathematics, security valuation, capital investment decision-making, portfolio theory, corporate capital structure, cost of capital, and dividend policy.

### **Course Objectives:**

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

- Analyze the financial behavior of corporate entities using appropriate tools.
- Determine the intrinsic value of securities.
- Understand the interaction between financial markets and the economy.

### **Course Contents:**

- Introduction
- Consumption, Investment, and Capital Market
- The Time Value of Money
- Project Evaluation: Principles, Methods, and Applications
- Risk and Return
- The Capital Markets
- Sources of Finance: Equity and Debt
- Payout Policy
- Principles of Capital Structure
- Capital Structure Decisions
- The Cost of Capital
- Leasing and Other Equipment Finance
- Capital Market Efficiency

- Future Contracts and Swaps
- Options and Contingent Claims
- Analysis of Takeovers and Mergers

**Recommended Books:**

1. Brealey, R. A., Myers, S. C., & Allen, F. (2017). Principles of Corporate Finance (12th ed.). McGraw Hill Education.
2. Ross, S. R., Westerfield, R. W., & Jordan, B. D. (2017). Essentials of Corporate Finance (9th ed.). McGraw Hill Education.
3. Peirson, R., Brown, S., Easton, S. A., Howard, P., & Pinder, S. (2015). Business Finance (12th ed.). McGraw Hill Education.

**Websites:**

- State Bank of Pakistan: [www.sbp.org.pk](http://www.sbp.org.pk)
- Security & Exchange Commission of Pakistan: [www.secp.gov.pk](http://www.secp.gov.pk)
- Pakistan Stock Exchange: [www.psx.com.pk](http://www.psx.com.pk)
- Financial Literacy & Capacity Building: [www.financialeducation.pk](http://www.financialeducation.pk)

## **BEF-510: Corporate Finance**

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This introductory course in financial management focuses on the fundamentals of corporate financial decision-making, with special emphasis on investment, financing, and dividend distribution. Building upon concepts from accounting, economics, and quantitative analysis, the course equips students with conceptual frameworks and specialized tools to solve real-world financial problems at both individual and corporate levels. The course balances theoretical knowledge with practical applications, covering topics such as financial mathematics, security valuation, capital investment decision-making, portfolio theory, corporate capital structure, cost of capital, and dividend policy.

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- Introduction
- Consumption, Investment, and Capital Market
- The Time Value of Money
- Project Evaluation: Principles, Methods, and Applications
- Risk and Return
- The Capital Markets
- Sources of Finance: Equity and Debt
- Payout Policy
- Principles of Capital Structure
- Capital Structure Decisions
- The Cost of Capital
- Leasing and Other Equipment Finance

- Capital Market Efficiency
- Future Contracts and Swaps
- Options and Contingent Claims
- Analysis of Takeovers and Mergers

**Recommended Books:**

1. Brealey, R. A., Myers, S. C., & Allen, F. (2017). Principles of Corporate Finance (12th ed.). McGraw Hill Education.
2. Ross, S. R., Westerfield, R. W., & Jordan, B. D. (2017). Essentials of Corporate Finance (9th ed.). McGraw Hill Education.
3. Peirson, R., Brown, S., Easton, S. A., Howard, P., & Pinder, S. (2015). Business Finance (12th ed.). McGraw Hill Education.

**Websites:**

- State Bank of Pakistan: [www.sbp.org.pk](http://www.sbp.org.pk)
- Security & Exchange Commission of Pakistan: [www.secp.gov.pk](http://www.secp.gov.pk)
- Pakistan Stock Exchange: [www.psx.com.pk](http://www.psx.com.pk)
- Financial Literacy & Capacity Building: [www.financialeducation.pk](http://www.financialeducation.pk)

## **BEF-512: Environmental Economics and Finance**

### **Course Description**

This course introduces students to the understanding and application of economic theory and the tools of policy analysis in the context of modern environmental issues. The course introduces basic analytical concepts and relevant economic theory concerning market failures to understand the causes of many environmental problems. Moreover, it discusses specific environmental policy areas such as climate change and look at various tools of economic policy analysis above all, the effect of alternative policies on firms and individuals. The class examines traditional and alternative performance metrics, such as “Green GDP”, and explores the relationship between risk and return, return on investments, including environmental, social, and governance (ESG) investing. The course emphasizes relationships between business management and environmental quality and provides students with a financial and economic decision-making framework for understanding and analyzing environmental issues. The course utilizes a case-study approach to cover economic and finance concepts in real world scenarios involving natural resource and environmental decisions. Students will leave this course with the ability to confidently converse regarding sustainability in a finance and economics context.

### **Course Topics:**

#### **1. Introduction: The Economy and the Environment**

- Changing Perspectives on the Environment
- Economics and the Environment
- A Framework for Environmental Analysis
- Environmental Microeconomics and Macroeconomics

#### **2. Resources, Environment, and Economic Development**

- A Brief History of Economic Growth and the Environment
- The Future of Economic Growth and the Environment
- Sustainable Development

#### **3. The Theory of Environmental Externalities**

- The Theory of Externalities
- Welfare Analysis of Externalities
- Property Rights and the Environment

#### **4. Common Property Resources and Public Goods**

- Common Property, Open Access, and Property Rights
- The Environment as a Public Good
- The Global Commons

## **5. Resource Allocation Over Time**

- Allocation of Non-renewable Resources
- Hotelling's Rule and Time Discounting

## **6. Valuing the Environment**

- Total Economic Value
- Overview of Valuation Techniques
- Revealed PRecommended Methods
- Stated PRecommended Methods
- Cost-Benefit Analysis

## **7. National Income and Environmental Accounting**

- Greening the National Income Accounts
- Environmentally Adjusted Net Domestic Product
- Adjusted Net Saving
- The Genuine Progress Indicator
- The Better Life Index
- Environmental Asset Accounts
- The Future of Alternative Indicators

## **8. Environmental Finance – Overview**

- Introduction to Environmental Finance.
- Traditional vs. Alternative Investments in Environmental Finance
- Financial asset classes and buy/sell investors. Structures, return characteristics and scalability.
- The environmental finance & investment value chain – system components

## **9. Stocks and Impact Funds: ESG-based Investing**

- Integrating ESG factors into fundamental investment analysis.
- Spectrum of impact investing and return characteristics.
- An investors perspective on the ESG issues impacting financial value
- Climate change – the ultimate environmental finance issue
- Who is making the link? Analysts, asset managers, pension funds, WBCSD, UNEP

## **10. Green Bonds: Tracking Green Performance**

- In depth overview of green bonds, issuance, assurances and rating.
- Innovations and new business development in green bond structuring and rating.
- Corporate green bonds – who is issuing?
- Green bonds – who is buying?
- Standardization of green bonds
- Green bond underwriting and auditing



## **11. Project Finance: Leveraging Debt and Equity**

- Overview of project finance, investment model, and carbon offsets
- Kyoto Protocol; EU Emissions Trading System (ETS) and the role of the Clean
- Development Mechanism (CDM) and JI (Joint Implementation)
- Buying and selling offsets
- Project finance structures and special purpose entities (SPE)

## **12. Real Asset Impact Investments:**

- Financing the transition to a green economy through green assets.
- Innovations in low-carbon investments and business models.
- Real estate investment trusts (REIT)
- Yieldco's: Investment vehicles to protect investors from regulatory changes
- Master Trusts and Asset-backed securities
- Bundling and securitization of 'green' assets. Unlocking 'liquid capital' for real assets.
- Securitization: Benefits, Risks and Process
- Asset backed solar and energy efficiency securities
- Collateralized debt obligations and project bonds

## **13. Insurance and Derivatives**

- Enterprise Risk Management (ERM) – Basic Principles
- Managing Weather-related Risk
- Innovations in weather derivatives and hedging mechanisms.
- Integrating sustainability in ERM processes
- Climate change impacts: physical & operational
- Hedging climate change risk: insurance, weather derivatives, catastrophe bonds

## **14. Venture Capital and Private Equity**

- Risk and valuation in venture capital and private equity financing of CleanTech and environmental projects

## **15. Green FinTech and Real Assets:**

- Financial technology and 'Green Fintech'
- Microfinance – Sustainable microfinance, its growing relevance as institutional investment
- Crowd-lending, crowd-equity and peer-to-peer (P2P) investing
- Discussion of future trends of crowd finance and the potential for environmental finance
- The Blockchain Investment Model
- Background on the blockchain model, initial coin offerings (ICO), and distributed ledgers

### **Recommended Books**

Harris, Jonathan M. & Brian Roach 2015. Environmental and Natural Resource Economics : A Contemporary Approach. 3rd ed. Routledge

Sonia Labatt, Rodney R. White. 2002.Environmental Finance: A Guide to Environmental Risk Assessment and Financial Products [1 ed.] Wiley.

Marc Chesney, Jonathan Gheysens, Luca Taschini 2013. Springer Texts in Business and Economics  
Environmental Finance and Investments [1 ed.] Springer-Verlag Berlin Heidelberg

Gregoriou, Greg N.; Ramiah, Vikash. 2016. Handbook of Environmental and Sustainable Finance [1 ed.]  
Academic Press

Philip Arestis, Malcolm Sawyer 2015. International Papers in Political Economy Series  
Finance and the Macroeconomics of Environmental Policies, Palgrave Macmillan UK

## **BEF-601: International Finance**

### **Course Description:**

International Finance examines the monetary and macroeconomic relationships between countries, offering a thorough introduction to international financial management and investment principles. The course emphasizes foreign exchange and international capital markets, exploring the dynamics of the global financial system, international monetary system, balance of payments, exchange rates, foreign direct investment, and their impact on international trade. Organized into three parts, the course begins with the global financial environment, progresses to foreign exchange, and concludes with international portfolio investment strategies, hedging, political risk, and international asset pricing.

### **Course Objectives:**

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

- Understand the core concepts and dynamics of international finance.
- Analyze the impact of international financial markets on global and domestic economies.
- Apply strategies for managing exchange rate risks and international investment portfolios.

### **Course Contents:**

- International Economics: Importance, trade, and standard of living; challenges in international economics.
- International Resources Movement: Types, motives, and effects of international capital flows.
- Balance of Payment: Principles, accounting, and disequilibrium in international transactions.
- Exchange Rate and Foreign Exchange Market: Dynamics, functions, risks, hedging, and policy effects on exchange rates.
- Income Adjustment Mechanism: Income determination in closed and open economies; international monetary system and its problems.

### **Textbooks / Recommended Books:**

1. Salvatore, D. (2013). International Economics (11th ed.). Wiley.
2. Krugman, P., & Obstfeld, M. (2012). International Economics: Theory and Policy (9th ed.). Addison-Wesley.

## **BEF-603: Econometrics**

### **Course Description:**

Econometrics involves the application of mathematical and statistical methods to analyze economic theories and models. This course introduces students to the fundamentals of econometrics, emphasizing the conversion of qualitative aspects into quantitative analysis. Students will learn to use simple and multiple regression models through practical examples and case studies, enabling them to efficiently analyze economic theories and relationships.

### **Course Objectives:**

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

- Understand the basic concepts and methodologies of econometrics.
- Apply econometric models to real-world economic data.
- Utilize regression analysis to test economic theories and models.
- Interpret and analyze results from econometric models using statistical software.

### **Course Contents:**

#### **1. Introduction**

- Introduction to Econometrics as a separate discipline
- Methodology of econometrics
- Types of econometrics
- Mathematical and statistical prerequisites
- Use of computer software in econometrics

#### **2. Nature of Regression Analysis and Two-Variable Regression Analysis**

- Origin and interpretation of regression
- Statistical versus deterministic relationships
- Regression, causation, and correlation
- Nature and sources of data
- Population regression function versus sample regression function
- Linearity in variables and parameters

- Stochastic specification of PRF
- Significance of stochastic disturbance term

### **3. Two-Variable Regression Model**

- Method of Ordinary Least Squares (OLS)
- Classical Linear Regression Model
- Precision or standard errors
- Properties of least-squares estimators
- Coefficient of determination
- Derivation of least-squares estimates

### **4. Classical Normal Linear Regression Model (CNLRM)**

- Probability distribution of disturbances
- Normality assumption
- Properties of OLS estimators under normality assumption
- Method of Maximum Likelihood (ML)
- Maximum Likelihood estimation of the two-variable regression model

### **5. Two-Variable Regression: Interval Estimation and Hypothesis Testing**

- Revision of statistical tools as prerequisites
- Interval estimation
- Confidence intervals for regression coefficients
- Hypothesis testing: Practical aspects
- Regression analysis and analysis of variance
- Application of regression analysis and the problem of prediction
- Reporting and evaluating regression analysis results

## 6. Extensions of the Two-Variable Linear Regression Model

- Regression through the origin
- Scaling and units of measurement
- Regression on standardized variables
- Functional forms of regression models
- Measurement of elasticity
- Log-linear model, semi-log model, reciprocal model

## 7. Multiple Regression Analysis

- Three-variable model
- Interpretation of multiple regression equation
- Partial regression coefficients
- OLS and ML estimation of partial regression coefficients
- Multiple coefficient of determination
- Specification bias
- $R^2$  and adjusted  $R^2$
- Cobb–Douglas Production Function
- Polynomial regression models
- Partial correlation coefficients
- Hypothesis testing in multiple regression
- Testing overall significance of the sample regression
- Testing equality of two regression coefficients
- Restricted least squares
- Prediction with multiple regression
- Troika of hypothesis tests: Likelihood Ratio (LR), Wald (W), and Lagrange Multiplier (LM) tests
- Testing functional form of regression

## **8. Dummy Variable Regression Models**

- Nature of dummy variables
- ANOVA models
- ANOVA models with two qualitative variables
- Regression with a mixture of quantitative and qualitative regressors: ANCOVA models
- Dummy variable alternative to the Chow test
- Interaction effects using dummy variables
- Use of dummy variables in seasonal analysis
- Piecewise linear regression
- Panel data regression models

### **Recommended Books**

1. Waheed, A. (2023). *Econometrics: Application with EViews*. Royal Book Company.
2. Vogelvang, B. (2005). *Econometrics: Theory & Applications with Eviews*. Financial Times Management.
3. Gujarati, D. N. (2010). *Basic Econometrics* (5th rev. ed.). McGraw-Hill.
4. Salvatore, D., & Reagle, D. (2011). *Schaum's Outline of Statistics and Econometrics* (2nd ed.). McGraw-Hill.
5. Hayashi, F. (2000). *Econometrics*. Princeton University Press.
6. Baltagi, B. H. (2013). *Econometric Analysis of Panel Data* (5th ed.). Wiley.

## **BEF-605: Project Management**

### **Course Description:**

This course introduces the theory and methods of economic evaluation of projects, focusing on cost-benefit analysis, cost-effectiveness analysis, and cost-utility analysis. Emphasis is placed on evaluating individual investment projects and public expenditure projects, equipping students with the skills necessary to assess the economic viability and impact of various projects.

### **Course Objectives:**

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

- Understand the fundamental principles of project evaluation.
- Apply cost-benefit analysis and other evaluation techniques to assess projects.
- Evaluate the economic impact of projects on a macro and micro level.
- Make informed decisions regarding project investment and public expenditure.

### **Course Contents:**

#### **A. Introduction**

- Definition of a project
- Interrelationship between projects and development plans
- Project cycles
- Project analysis
- Financial and economic analysis basics
- Project cost-benefit analysis
- Distinction between financial and economic analysis
- Criteria for project investment decisions

#### **B. Identification and Quantification of Project Benefits and Costs**

- Relationship of benefits and costs with project objectives
- Concept of incremental net benefits or cash flow
- Use of "with" and "without" project approach



- Categories of costs and benefits, including intangible costs and benefits
- Treatment of special items affecting costs and benefits (taxes, subsidies, credit transactions, interest during project construction, depreciation, sunk costs, contingency allowances, working capital, replacement costs, residual/salvage value)

### **C. Valuing Project Benefits and Costs**

- Market prices as indicators of value
- Use of market prices in financial analysis
- Handling seasonal variations, changes in relative prices, and inflation
- Use of shadow prices in economic analysis
- Accounting for foreign exchange premiums
- Removing market price distortions in traded and non-traded goods

### **D. Measures of Project Worth: Comparison of Benefits and Costs**

- Undiscounted measures of project worth (payback period, proceeds per unit of outlay, average annual proceeds per unit of outlay, average income on book value of investment)
- Discounted measures and related selection criteria (net present worth, internal rate of return, benefit-cost ratio, net benefit investment ratio)
- Comparative assessment of various discounted measures

### **E. Applications of Discounted Measures of Project Worth**

- Sensitivity analysis
- Choosing between mutually exclusive projects
- Derivation of domestic resource costs of foreign exchange earnings/savings

### **F. Cost-Effectiveness Analysis**

- Areas of application
- Elements of the analysis
- Methods of the analysis ("constant effects methods," "constant cost methods")
- Measures of cost-effectiveness (present worth, annual worth, cross-over discount rate)

- Limitations of the analysis

**Recommended Books:**

1. Curry, S., & Weiss, J. (n.d.). Project Analysis in Developing Countries. The Macmillan Press.
2. Chandra, P. (n.d.). Projects: Planning, Analysis, Selection, Financing, Implementation & Review. Tata McGraw-Hill.
3. Gittinger, J.-P. (1982). Economic Analysis of Agricultural Projects (2nd ed.). The Johns Hopkins University Press.
4. Choudhary, M. H. (1985). Project Appraisal, Monitoring, and Evaluation Processes with Special Recommended to Pakistan. Royal Book Company.

## **BEF-607: Human Resource Management**

### **Course Description:**

This course provides an in-depth understanding of the principles, functions, and practices of Human Resource Management (HRM). It covers the evolution and significance of HRM in today's global and competitive environment. The course emphasizes the strategic role of HRM in enhancing organizational performance, addressing ethical issues, and managing human resources effectively across different cultural contexts.

### **Course Objectives:**

- To develop an understanding of HRM principles and their application in the modern workplace.
- To equip students with skills to manage HR functions such as recruitment, selection, training, and performance evaluation.
- To explore the ethical aspects and global perspectives of HRM.
- To enable students to analyze and solve HR-related problems through case studies.

### **Course Contents:**

#### **A. HRM Overview**

- Significance, Definition, and Functions of HRM
- Evolution and Principles of HRM
- Ethical Aspects of HRM
- Role and Position of the HR Department
- HR Policies and Strategies for Performance Enhancement
- Global Perspectives in HRM

#### **B. Investment Perspectives of HRM**

- HR Planning
- Recruitment and Selection Processes
- Training and Development
- Job Analysis and Career Development

- Compensation: Influencing Factors and Current Trends

### **C. Performance Evaluation**

- Importance of Performance Evaluation
- Traditional and Modern Methods
- Trends in Performance Appraisal
- Compensation Concepts and Principles
- Methods of Payment

### **D. Salary and Wage Administration**

- Wage Structure and Policies
- Determinants of Wage Payment
- HR Accounting and Auditing: Practices and Standards
- HR Information Systems (HRIS)

### **E. Managing Industrial Relations**

- Trade Unions and Collective Bargaining
- Employee Participation Schemes
- Grievance and Dispute Resolution Mechanisms
- Safety and Welfare Management
- Managing Workplace Stress

### **F. Case Study**

- Discussion of relevant case studies in each unit

### **Recommended Books:**

- Cappelli, P., Charan, R., Buckingham, M., & Hoffman, R. (2019). HBR's 10 Must Reads on Reinventing HR. Harvard Business Review Press.

- Gilbert, J. (2020). Human Resource Management Essentials You Always Wanted to Know. Vibrant Publishers.
- Schmidt, L. (2021). Redefining HR: Transforming People Teams to Drive. Kogan Page.
- Leap, T. L., & Crino, M. D. (1990). Personal Human Resource Management. Maxwell Macmillan International.
- Beach, D. (1990). Personnel: The Management of People at Work. Macmillan International.
- Snell, S., & Bohlander, G. (2007). Human Resource Management. Cengage Learning.
- Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2007). Fundamentals of Human Resource Management. McGraw-Hill.

## **BEF-609: Entrepreneurship**

### **Course Description**

This course introduces students to the principles of entrepreneurship and entrepreneurial management, covering the entrepreneurial mindset, opportunity recognition, business planning, and the process of launching and scaling a venture. It emphasizes the role of innovation, risk-taking, and adaptability in building successful enterprises. Throughout the course, students will develop essential skills in finance, marketing, leadership, and team management. The second half of the course focuses on growth strategies, managing risks, and understanding global entrepreneurship, concluding with a capstone project where students apply their knowledge to create and present a comprehensive business plan.

### **Course Objectives**

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

1. Understand the role of entrepreneurship in economic development.
2. Identify and develop personal entrepreneurial traits, skills, and motivations.
3. Apply critical thinking and problem-solving skills to entrepreneurial challenges.
4. Develop a comprehensive business plan, including market analysis, financial projections, and growth strategies.
5. Analyze entrepreneurial finance options, manage cash flow, and create financial projections.
6. Implement effective entrepreneurial marketing and branding strategies.
7. Manage teams, resolve conflicts, and build leadership skills in an entrepreneurial context.
8. Identify and mitigate risks while scaling a business.
9. Understand global entrepreneurship and manage cross-cultural teams.
10. Apply entrepreneurial principles to launch, manage, and grow a venture.

### **Course Contents**

#### **1. Introduction to Entrepreneurship**

Definition and scope of entrepreneurship

Types of entrepreneurs: Small business, scalable startup, social entrepreneurship

The entrepreneurial mindset and characteristics

## **2. Idea Generation and Opportunity Recognition**

Sources of entrepreneurial ideas

Market research and validation

Identifying and evaluating opportunities

## **3. Business Planning**

Business model canvas

Writing a business plan: Executive summary, market analysis, financial projections

Pitching and presenting your plan

## **4. Entrepreneurial Finance**

Funding options: Bootstrapping, crowdfunding, angel investors, venture capital

Financial statements and projections

Cash flow management

## **5. Entrepreneurial Marketing and Branding**

Building a strong brand identity

Digital marketing strategies: Social media, SEO, content marketing

Measuring marketing effectiveness

## **6. Entrepreneurial Leadership and Team Management**

Building and managing a team

Leadership styles and conflict resolution

Negotiation and decision-making in entrepreneurial settings

## **7. Launching and Growing Your Venture**

Launching your venture

Scaling and growth strategies

Overcoming obstacles and challenges

## **8. Managing Risk and Failure**

Identifying and mitigating risks

Coping with failure and learning from mistakes

Pivoting and adapting to change

## **9. Global Entrepreneurship and CrossCultural Management**

Entrepreneurship in diverse cultural contexts

Global market entry strategies

Managing crosscultural teams

## **10. Family Entrepreneurship and Succession Planning**

Family business dynamics and challenges

Succession planning and leadership transition

Managing family and business relationships

## **11. Social Entrepreneurship and Sustainability**

Social entrepreneurship and impact investing

Sustainable business practices

Corporate social responsibility

## **12. Capstone Project**

Applying entrepreneurial skills and knowledge

Developing a comprehensive business plan

Presenting and defending the plan



## **Recommended Books**

1. Barringer, B. R., & Ireland, D. (2019). *Entrepreneurship: Successfully launching new ventures* (6th ed.). Pearson Education.
3. Osterwalder, A., & Pigneur, Y. (2010). *Business model generation*. John Wiley & Sons.
4. Hills, G. E., & Hultman, R. E. (2017). *Entrepreneurial marketing*. Routledge.
5. Hisrich, R. D., & Kearney, C. (2018). *Global entrepreneurship*. McGraw-Hill Education.
6. Kuratko, D. F. (2009). *Introduction to entrepreneurship* (8th ed.). South Western College.
7. Khan, M. (2017). *Entrepreneurship in Pakistan*. Pakistan Institute of Development Economics (PIDE).
8. Sherjan, F. (2019). *The entrepreneur's journey*. Paramount Publishing Enterprise.

## **BEF-611: Game Theory**

### **Course Description**

This course introduces Game Theory. Game Theory is a mathematical framework which makes possible the analysis of the decision-making process of interdependent subjects. It is aimed at explaining and predicting how individuals behave in a specific strategic situation, and therefore help improve decision making. A situation is strategic if the outcome of a decision problem depends on the choices of more than one person. Most decision problems in real life are strategic. The course will explain in depth the standard equilibrium concepts (such as Nash Equilibrium, Subgame-Perfect Nash Equilibrium, and others) in Game Theory. To illustrate the concepts, real-world examples, case studies, and classroom experiments might be used.

### **Course Topics:**

#### **1. Conflict, Strategy, and Games**

- The Spanish Rebellion
- The Prisoner's Dilemma
- John Nash's Problem in the Movie
- Games in Extensive and Normal Form

#### **2. Non-Cooperative Equilibria in Normal Form Games**

- Dominant Strategies and Social Dilemmas
- Nash equilibrium
- Some Classical Cases in Game Theory
- Three-Person Games
- Probability and Game Theory
- Mixed Strategy Nash Equilibria

#### **3. Advanced Topics in Non-cooperative Equilibrium**

- The Location Game
- Iterated Elimination of Dominant Strategies
- A Confession Game

#### **4. Duopoly Strategies and Prices**

- Cournot Model
- Nash Equilibrium in Cournot Models
- Bertrand and Edgeworth
- A Mixed Strategy Pricing Game

#### **5. N-Persons Games**

- The Queuing Game
- Games with Many Participants: Proportional Games
- Hawk VS Dove
- Keynesian Economics and Coordination Problems

#### **6. Cooperative Solutions**

- Elements of Cooperative Games
- Credible Commitment
- Some Political Coalitions
- The International Alliance Game

## 7. Applications of the Core to Economics

- The Market Game
- A Two-Person Exchange Game
- More than Two Pairs of Traders
- Public Goods Contribution Game
- Monopoly and Regulation

## 8. Sequential Games

- Concepts of Sequential Games
- Strategic Investment to Deter Entry
- Imbedded Game
- Repeated Play
- Indefinitely Repeated Play

## 9. Game Theory, Law, and Social Mechanism Design

- Liability, Grading Team Projects
- The Paradox of Benevolent Authority: Monetary Authority

## 10. Voting Games

- Party! The Theme for the party
- Strategic Voting
- Voting Problems and Criteria

### **Textbook:**

Roger A. McCain, 2004, Game Theory: A Non-Technical Introduction to the Analysis of Strategy. Thomson.

### **Recommended Books:**

Martin Osborne: An Introduction to Game Theory, Oxford University Press, 2004.

Robert Gibbons, Game Theory for Applied Economists. Princeton University Press, 1992.

Bierman and Fernandez, Game Theory with Economic Applications, Second Edition, published by Addison-Wesley.

## **BEF-613: Real Estate Economics**

### **Course Description**

This course examines the real estate sector from a microeconomic perspective, focusing on the interaction between markets and policy. It explores land markets, housing markets, urban spatial development, economic development, and the migration of labor and capital. Additionally, the course covers the role of transportation and local governments in urban development, as well as the effects of macroeconomic policies on real estate and business cycles.

### **Course Objectives**

The course aims to provide students with a comprehensive understanding of the economics of real estate markets, urban economics, housing markets, investment climates, and the evaluation of housing markets. By the end of the course, students will:

1. Gain insights into the functioning of real estate markets and urban economics.
2. Understand the impact of public policies on real estate and urban development.
3. Analyze the macroeconomic factors influencing real estate cycles.

### **Course Contents**

#### **1. Introduction**

- The real estate sector: capital and property markets
- Comparative statics: predicting changes in real estate markets
- Real estate life cycles and business cycles

#### **2. Residential Land Markets and Development: Prices and Land Use**

- Location and rents: the indifference principle
- Submarkets and land-use segregation
- Urban growth, rents, and prices
- The highest use for residential development
- Location, land use, and density
- The transition between land uses

### **3. Industrial Location**

- Historical development and changing technology
- Transportation and shipping costs
- Tax and public policy effects

### **4. Office Location**

- The office market and the labor market
- Theories of multiple-centered cities
- Agglomeration and clustering
- The commercial land markets

### **5. Retail Development**

- Retail travel patterns and the distribution of stores
- Pricing and spatial competition
- Shopping centers and store clustering

### **6. Local Government and Land Markets**

- Property taxes, public expenditure, and local services
- Community choice, "capitalization", and income segregation
- The fiscal incentives for land use regulation
- Congestion, transportation infrastructure, planning regional development

### **7. Macroeconomic Analysis of Housing**

- Units, households, and tenure choice
- Demographic and economic influences
- Housing appreciation, mortgages, and the cost of owning
- Moving, vacancy, and sales: the demand for housing quality

## **8. Macroeconomic Analysis of Non-residential Property**

- The operation of non-residential markets
- Vacancy, absorption, market frictions
- Leasing, term structures
- Long-term trends in space usage and demand

## **9. Time Series Analysis of Real Estate Markets**

- The time-series properties of housing and commercial space markets
- Special features of real estate as an asset
- Stock-flow theory and real estate cycles
- Expectations, information, "efficient markets"
- The issue: Can markets forecast?

## **10. Regional Growth and Real Estate Markets**

- The determinants of metropolitan growth
- Export demand and industrial development
- Birth rates, migration, and wages
- A model analyzing metropolitan growth
- Demand and supply shocks, real estate, and the cost of living

### **Recommended Books**

- Brueckner, J. (2011). Lectures in Urban Economics. MIT Press.
- Di Pasquale, D., & Wheaton, W. (1995). Urban Economics and Real Estate Markets. Prentice-Hall.
- McKenzie, D. J., Betts, R. M., & Jensen, C. A. (2011). Essentials of Real Estate Economics (6th ed.). Cengage Learning.

## **BEF-602: Financial Management**

### **Course Description:**

This course introduces students to the fundamental concepts and tools of financial management. It covers the nature of the finance function, financial decision-making processes, and the theoretical underpinnings necessary for managing financial resources effectively. Topics include investment decisions, cost of capital, capital structure, dividend policies, and working capital management.

### **Course Objectives:**

- To provide a solid understanding of the financial management function in organizations.
- To equip students with the skills to make informed financial decisions.
- To analyze and apply various financial management tools and concepts.
- To understand the impact of financial decisions on the overall performance of an organization.

### **Course Contents:**

#### **A. Introduction to Financial Management**

- Overview of Financial Management
- The Business, Taxes, and Financial Environment

#### **B. Finance Function**

- Profit vs. Wealth Maximization
- Time Value of Money
- Basic Valuation Models

#### **C. Investment Decisions**

- Capital Budgeting: Techniques and Applications
- Advanced Problems and Cases in Capital Budgeting

#### **D. Cost of Capital**

- Concept and Measurement of Cost of Capital

- Debt vs. Equity
- Weighted Average Cost of Capital

### **E. Capital Structure Decisions**

- Capital Structure vs. Financial Structure
- Financial Leverage and Break-Even Analysis
- Capital Structure Theories

### **F. Dividend Decisions**

- Dividends and Firm Value
- Dividend Policy and Valuation Models
- Bonus Shares and Share-Splits

### **G. Working Capital Management**

- Components and Determinants of Working Capital
- Planning and Financing Working Capital

### **H. Management of Current Assets**

- Cash Management
- Management of Marketable Securities
- Management of Receivables and Inventory

### **Recommended Books:**

- Van Horne, J. C., & Wachowicz, J. M. (2008). Fundamentals of Financial Management (13th ed.). Prentice Hall.
- Emery, D. R., Finnerty, J. D., & Stowe, J. D. (1998). Principles of Financial Management. Prentice Hall.
- Hampton, J. J. (2003). Financial Decision Making: Concepts, Problems, and Cases. Prentice Hall.
- Van Horne, J. C. (2004). Financial Management and Policy. Pearson Education.



## **BEF-604: Computer Orientation & Information Economics**

### **Course Description:**

This blended learning course is designed to equip students with proficiency in the practical applications of economics using computer software. The course builds on foundations in econometrics, mathematics, and statistical tools, focusing on converting qualitative aspects into quantitative analysis. Students will learn to utilize spreadsheet software like Excel and econometric tools such as EViews and Stata. Applications will draw from microeconomics, macroeconomics, and financial economics, enabling students to analyze and interpret economic data effectively.

### **Course Objectives:**

- To provide students with a strong foundation in econometrics and its application in economics.
- To familiarize students with the use of spreadsheets for economic analysis.
- To enable students to download, manage, and analyze economic data from various online sources.
- To introduce students to the use of econometric software like Excel, EViews, and Stata in economic research.
- To develop students' ability to interpret and present economic data.

### **Course Contents:**

#### **1. Introduction:**

- Overview of computer applications in economics.
- Methodology and tools for qualitative analysis in economics.
- Mathematical and statistical prerequisites.

#### **2. Introduction to Spreadsheets:**

- Basics of spreadsheets with graphs and charts.
- Importing economic data from WDI, OECD, and other web sources into Excel.

#### **3. Graphing and Summarizing Data:**

- Techniques for graphing and summarizing economic data using Excel.
- Interpretation of economic data.

#### **4. Database Management Applications:**

- Database tools and statistical functions in Excel.
- Use of pivot tables for data analysis.

#### **5. Nature of Regression Analysis and Two-Variable Regression Analysis:**

- Introduction to regression analysis, causation vs. correlation, and the significance of stochastic disturbance terms.
- Application of regression analysis using Excel.

#### **6. Two-Variable Regression Model:**

- Method of Ordinary Least Squares (OLS) and its properties.
- Application of the classical linear regression model using Excel.

#### **7. Classical Normal Linear Regression Model (CNLRM):**

- Probability distribution of disturbances, normality assumption, and properties of OLS estimators.
- Maximum likelihood estimation of the two-variable regression model.

#### **8. Two-Variable Regression: Interval Estimation and Hypothesis Testing:**

- Interval estimation, confidence intervals for regression coefficients, and hypothesis testing.
- Application of regression analysis using Excel and EViews.

#### **9. Extensions of the Two-Variable Linear Regression Model:**

- Regression through the origin, scaling, and functional forms of regression models.
- Measurement of elasticity and applications of log-linear, semi-log, and reciprocal models.

**Recommended Books:**

1. Gujarati, D. N. (2018). Linear Regression: A Mathematical Introduction (Quantitative Applications in the Social Sciences). SAGE Publications.
2. Koop, G. (2013). Analysis of Economic Data (4th ed.). Wiley.
3. Hill, R. C., Griffiths, W. E., & Lim, G. C. (2018). Principles of Econometrics (5th ed.). Wiley.
4. Gujarati, D. N. (2010). Basic Econometrics (5th rev. ed.). McGraw-Hill.
5. Stock, J. H., & Watson, M. W. (2014). Introduction to Econometrics (3rd Global ed.). Addison-Wesley.
6. Wooldridge, J. M. (2012). Introductory Econometrics: A Modern Approach (5th ed.). Cengage Learning.
7. Waheed, A. (2023). Econometrics: Application with EViews. Royal Book Company.

**Additional Recommended Material:**

1. Guide to Economic Indicators (6th ed.). The Economist.
2. Harvey, G. (2012). Excel for Dummies (2nd ed.). Wiley.
3. Bluttman, K. (2013). Excel Formulas and Functions (2nd ed.). Wiley.
4. Inflation Monitor. State Bank of Pakistan.
5. Monthly Cotton Review. Ministry of National Food Security and Research, Government of Pakistan.

## **BEF-606: Research Methodology**

### **Course Description:**

This course is designed to introduce students to the process of conducting research in economics. It covers the fundamentals of research design, data collection, data analysis, and the presentation of research findings. Students will learn to develop research proposals, utilize various research methodologies, and understand ethical issues in research. The course aims to equip students with the skills needed to conduct both pure and applied research in economics.

### **Course Objectives:**

- To understand the nature and purpose of research in economics.
- To identify and access academic resources, such as journals and databases.
- To develop skills in writing research proposals and conducting economic research.
- To gain proficiency in quantitative research techniques.
- To develop competencies in data collection, analysis, and reporting.
- To become familiar with different bibliographic databases and referencing styles.
- To understand the principles of scientific ethics and avoid misconduct.

### **Course Contents:**

#### **1. Introduction to Research:**

- Definition and characteristics of research.
- Research problem identification and classification.
- Overview of basic and applied research, deductive and inductive approaches, and quantitative and qualitative research.

#### **2. The Research Proposal:**

- Attributes of a good research proposal.
- Contents and structure of thesis/dissertation and research project proposals.

#### **3. The Review of Literature:**

- Importance of literature review in research.
- Guidelines for conducting literature reviews and referencing.
- Sources of literature: primary, secondary, and tertiary.

#### **4. Data Analysis:**

- Techniques for univariate, bivariate, and multivariate data analysis.

#### **5. Presenting Research Findings:**

- Formatting research articles, reports, and theses.
- Referencing styles and oral presentation skills.
- Ethical considerations and scientific misconduct.

#### **Recommended Books:**

1. Waheed, A. (2020). Quantitative Research Methods: A Practical Approach. Royal Book Company.
2. Kumar, M., Talib, S. A., & Ramayah, T. (2012). Business Research Methods. Oxford University Press.
3. Rugg, G., & Petre, M. (2007). A Gentle Guide to Research Methods. Open University Press.

## **BEF-608: Analysis of Pakistan Industries**

### **Course Description:**

This course provides an in-depth analysis of the industrial sector in Pakistan, focusing on the factors influencing industry structure, performance, and evolution. Students will explore how globalization, technology, and government policies impact industries. The course also covers the challenges faced by industries in Pakistan and the measures taken by the government to address these issues. Through this analysis, students will develop an understanding of the competitive environment and strategic decision-making in industries.

### **Course Objectives:**

- To analyze the structure and evolution of industries in Pakistan.
- To understand the impact of globalization, technology, and government policies on industries.
- To evaluate the challenges faced by Pakistan's industries and the effectiveness of government interventions.
- To apply economic frameworks to assess industry competitiveness and strategy.

### **Course Contents:**

#### **1. Economy of Pakistan: Causes**

- Lack of capital, energy crisis, and market size limitations.
- Challenges in credit facilities, modern technology adoption, and industrial research.
- Transportation issues, labor quality, currency value, and political instability.

#### **2. Government Interventions:**

- Overview of initiatives by the Pakistan Industrial Development Corporation (PIDC) and Industrial Development Bank of Pakistan (IDBP).
- Role of Pakistan Industrial Credit and Investment Corporation, industrial research, and training programs.

#### **3. Protectionist Policies and Incentives:**

- Tax concessions, support for private enterprises, export processing zones, and foreign capital attraction.
- National Development Corporation Finance and its role in industrial growth.

**Recommended Books:**

1. Porter, M. E. (1980). Competitive Strategy: Techniques for Analyzing Industries and Competitors. Free Press.
2. Porter, M. E. (1990). Competitive Advantage of Nations. Free Press.
3. Vietor, R. H. K. (2007). How Countries Compete: Strategy, Structure, and Government in the Global Economy. Harvard Business School Press.
4. Dyck, A. (1997). Country Analysis: A Framework to Identify and Evaluate the National Business Environment. Harvard Business Review Cases.

**Useful Websites:**

- Securities & Exchange Commission of Pakistan: [www.secp.gov.pk](http://www.secp.gov.pk)
- State Bank of Pakistan: [www.sbp.org.pk](http://www.sbp.org.pk)
- Karachi Stock Exchange: [www.kse.com.pk](http://www.kse.com.pk)
- The Financial Daily: [www.thefinancialdaily.com](http://www.thefinancialdaily.com)
- Business Recorder: [www.brecorder.com](http://www.brecorder.com)
- Federal Board of Revenue: [www.fbr.gov.pk](http://www.fbr.gov.pk)
- Ministry of Finance, Pakistan: <http://finance.gov.pk/>
- Competition Commission of Pakistan: [www.mca.gov.pk/](http://www.mca.gov.pk/)
- Federal Bureau of Statistics: [www.fbs.gov.pk](http://www.fbs.gov.pk)

**Recommended Newspapers:**

- Business Recorder
- The Financial Daily
- Dawn (Business Section)

## **BEF-610: Islamic Banking and Finance**

### **Course Description**

This course explores the principles and practices of Islamic banking and finance. It examines how Islamic economics provides a comprehensive framework for financial transactions that align with Islamic law (Shariah). The course contrasts Islamic banking with conventional banking systems, emphasizing the ethical and social responsibilities embedded within Islamic finance. Students will gain an understanding of key concepts such as Riba (interest), Zakat (charity), and Halal investments, and how these are implemented in modern financial systems. Case studies of Islamic financial institutions and the Islamization of economies will provide practical insights into the application of these principles.

### **Course Objectives**

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

- Understand the fundamental principles and concepts of Islamic economics and finance.
- Analyze the differences between Islamic and conventional financial systems.
- Evaluate the ethical and social implications of financial decisions within an Islamic framework.
- Apply Islamic financial principles to real-world situations, including project financing and banking operations.
- Assess the challenges and achievements of the Islamization of financial institutions, particularly in Pakistan.
- Explore emerging trends and recent developments in Islamic finance globally.

### **Course Contents**

#### **1. Definitions and Basics**

- Definitions, concepts, and terminologies
- Brief history and rationale for Islamic economics
- Islamic economic system: sources of Islamic laws, including the Qur'an, Sunnah, Hadith, Ijma, and Qiyas
- Comparative analysis of Islamic economics with Capitalism, Socialism, and other economic systems

#### **2. Islamic Economics**

- Principles of Islamic economics
- Consumer behavior and basic values in Islamic economics



- Philanthropy and other-regarding behavior in Islamic finance

### **3. Factors of Production**

- Land tenure system, capital, and labor-capital relationship in Islam
- Rent, wages, and the Islamic perspective on work-life balance

### **4. Interest, Its Prohibitions, and Classifications**

- Definitions and types of Riba (interest)
- Riba in the Qur'an and Hadith
- Implications of interest in commercial transactions

### **5. Islamic Financial System**

- Islamic contracts and modes of financing
- Banking in Islam and the structure of the Islamic financial system

### **6. Financial System in Islamic Economy**

- Applications of Islamic financing: project financing, working capital financing, import/export financing

### **7. Islamization of Economy**

- Development of Islamic economics as an academic discipline
- Achievements and challenges in the Islamization of financial institutions in Pakistan and other countries

### **8. Case Studies**

- Analysis of Islamic financial institutions
- Comparative case studies on the Islamization of economies in selected countries

### **9. Emerging Trends and Recent Developments**

### **Recommended Books**

- Zaman, A. (n.d.). Islamic Economics: A Survey of the Literature. IRI Publications, IIUI, Islamabad.
- Naqvi, S. N. H. (2003). Perspectives on Morality and Human Well-being. Islamic Foundation.
- Mannan, M. A. (Latest Edition). Islamic Economics: Theory and Practice. Sh. Muhammad Ashraf Publisher.
- Dar, A. H., & Akram, M. (n.d.). Islamic Economics. Ilmi Kitab Khana.
- Mirakhor, A., Iqbal, Z., & Askari, H. (n.d.). Introduction to Islamic Economics: Theory and Application. John Wiley & Sons.

## **BEF-612: Behavioural Economics and Finance**

### **Course Description**

This course provides a broad overview of the fields of behavioural economics and finance. The focus of the course will be on introducing and studying biases in decision making within economic and financial contexts, drawing on insights from psychology. Students should leave the course with a better understanding of both the sources of irrational behaviour and their consequences for consumers, businesses, and financial markets. This course enables students to understand and differentiate different approaches to the definition and test of market efficiency and contrast them to empirical results. Identify, describe, and explain different behavioural traits and their implication for the individual decision process, as well as their relevance for financial economics. Understand and explain likely market outcomes when different behavioural and institutional mechanisms interact. Analyse financial markets using behavioural finance concepts to identify problems and propose possible solutions. Finally, understand how data can be examined to quantify answers to questions about trading behaviour.

### **Course Topics:**

#### **1. Introducing Behavioural Finance**

- What is Behavioural Economics?
- History and Present
- Key insights from Psychology
- Behavioural Tools and Methods
- The Structure of Behavioural Economics and Finance

#### **2. Motivations and Incentives**

- Incentives in Neoclassical Economics
- Extrinsic Versus Intrinsic Motivations
- Social Motivations
- Choice Overload

#### **3. Heuristics and Bias**

- Defining Rationality
- Heuristics and Decision-Making
- Insensitivity to Sample Size
- Insensitivity to Predictability
- Illusion of validity and Overconfidence
- Misconception of Regression

#### **4. Prospects and Regrets**

- Behavioural Paradoxes
- Expected Utility Theory (EUT)
- Kahneman and Tversky's Critique of EUT
- Kahneman and Tversky's Prospect Theory
- Regret Theory

## **5. Learning**

- Belief Learning
- Reinforcement Learning
- Experience-Weighted Attraction (EWA)
- Herding and Social Learning
- Evolutionary Approaches to Learning

## **6. Sociality and Identity**

- Social Influences
- Informational Influences
- Normative Influences
- Akerlof and Kranton's Identity Theory
- Social Identity Theory

## **7. Time and Plans**

- Exponential Discount Functions
- Behavioural Discount Functions
- Behavioural Life-Cycle Models
- Mental Effort and Bracketing

## **8. Bad Habits**

- Rational Addiction Models
- Visceral Factors

## **9. Personality, Moods and Emotions**

- Lessons from Psychology: Personality Theory
- Personality and Individual Differences
- Personality and Motivation
- Moods and Emotions
- Social Emotions

## **10. Behavioural Public Policy**

- Nudging Policies for Energy and the Environment
- Nudges for Healthy Living
- Behavioural Development Policy
- Behavioural Public Policy: Challenges and Pitfalls

## **11. Neuroeconomics**

- Principles of Neuroscience
- Neuroscientific Data and Techniques
- What is Neuroeconomics?
- Neuroeconomics Data
- Neuroeconomics Models and Theories
- Dual Systems Thinking

- Neuroeconomics Analyses of Prospect Theory
- Neuroeconomics Analyses of Time Inconsistency
- Neuroeconomic Analyses of Addiction
- Neuroeconomic Analyses of Learning
- Neuroeconomic Analyses of Social PRcommendeds
- Neuroeconomic Studies of Social Emotions
- Neuroeconomic Studies of Empathy and Theory of Mind

## **12. Behavioural Anomalies in Finance**

- Heuristics in Financial Decision-Making
- Mental Accounting and Framing
- Trading Puzzles
- Time Inconsistency and Financial Decision-Making

## **13. Corporate Investment and Finance**

- Neoclassical Theory of Firm
- Behavioural Theories of the Firm
- Behavioural Investment Appraisal

## **14. Emotional Trading**

- Emotions and Trading Performance
- Emotions and Risk-Taking
- Emotions, Heuristics and Prospect Theory
- Emotional Trading and Personality
- Financial Herding

## **15. Behavioural Macroeconomics**

- Mainstream Macroeconomics
- Keynesian's Psychology of the Macroeconomics
- A Behavioural Analysis of Macroeconomic Interactions
- Behavioural Macroeconomic Policy

## **16. Financial Instability and Macroeconomic Performance**

- Financial Market (In) Efficiency
- Time and Instability
- Speculative Bubbles
- Animal Spirits in Financial Markets
- Moods and Weather
- Financial Herding
- Social Moods in Socioeconomics
- Minsky's Financial Fragile
- Controlling Financial Instability

## **17. Happiness and Well-Being**

- Happiness
- Utility and Happiness

- Human Capital Investment
- Well-Being
- Well-Being and Environment
- Thinking About Happiness
- Measuring Well-Being
- Well-Being in Macroeconomic Policy

### **Recommended Books**

Michelle Baddeley. 2019. Behavioural Economics and Finance. Second Edition  
Routledge, Taylor & Francis Group

Edward Cartwright. 2011. Behavioural Economics. Routledge Taylor & Francis Group

Julia Puauschunder. 2020. Behavioural Economics and Finance Leadership: Nudging and Winking to Make Better Choices. 1st edition. Springer.

## **BEF-614: Time Series Analysis**

### **Course Description**

This course provides an introduction to the key concepts and techniques of time series analysis, focusing on the analysis of time dependent data and its applications in various fields such as economics and finance. Topics covered include stationarity, cointegration, causality, ARDL models, and time series forecasting. Students will learn to identify and model time series patterns and relationships, and use modern statistical methods to forecast future trends. The course will emphasize both theoretical understanding and practical applications, utilizing statistical software for hands-on exercises.

### **Course Objectives**

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

1. Understand the fundamental concepts of time series data and its key components.
2. Perform stationary analysis and recognize the importance of stationarity in time series modeling.
3. Identify longrun relationships through cointegration techniques.
4. Apply Granger causality tests to determine causal relationships between time series variables.
5. Model time series data using Autoregressive Distributed Lag (ARDL) models.
6. Perform accurate time series forecasting and evaluate the effectiveness of forecast models.
7. Utilize statistical software for time series analysis and forecasting.

### **Course Contents**

#### **1. Introduction to Time Series Analysis**

Definition and examples of time series data

Time series vs. cross-sectional data

Applications in economics, finance, and other fields

#### **2. Components of Time Series**

Trend, seasonality, cyclical, and irregular components

Decomposition of time series: Additive and multiplicative models

Identifying and interpreting trends and seasonal patterns

### **3. Stationary Analysis**

Definition of stationarity: Strict vs. weak stationarity

Importance of stationarity in time series analysis

Unit root tests: Augmented Dickey Fuller (ADF) test, Phillips Perron (PP) test

Differencing and transformation techniques to achieve stationarity

### **4. Autoregressive and Moving Average Models (AR and MA)**

Introduction to autoregressive (AR) and moving average (MA) models

Autoregressive Moving Average (ARMA) models: Identification using ACF and PACF

Estimation and interpretation of AR, MA, and ARMA models

### **5. Autoregressive Distributed Lag (ARDL) Models**

Introduction to ARDL models and their applications in time series

Advantages of ARDL in short and long term relationships

Estimation of ARDL models and interpretation of results

Bound testing for cointegration in ARDL models

### **6. Cointegration Analysis**

Definition and significance of cointegration

Engle Granger twostep method

Johansen cointegration test for multiple time series

Interpreting long run equilibrium relationships between nonstationary series

### **7. Causality in Time Series**

Granger causality: Definition and interpretation

Testing for Granger causality between variables

Limitations of Granger causality tests and alternative approaches

### **8. Time Series Forecasting**

Time series forecasting techniques: AR, MA, ARMA, and ARIMA models

Forecast evaluation metrics: Mean Absolute Error (MAE), Root Mean Square Error (RMSE), and Mean Absolute Percentage Error (MAPE)

Forecasting with ARDL models



Practical examples of forecasting in economics and finance

## **9. Practical Applications Using Statistical Software**

Handson time series analysis using R, Python, or EViews

Building models, testing for stationarity, cointegration, and causality

Forecasting and model evaluation

### **Recommended Books**

1. Waheed, A. (2023). *Econometrics: Application with EViews*. Royal Book Company.
2. Brockwell, P. J., & Davis, R. A. (2016). *Introduction to time series and forecasting* (3rd ed.). Springer.
3. Hamilton, J. D. (1994). *Time series analysis*. Princeton University Press.
4. Cryer, J. D., & Chan, K. S. (2008). *Time series analysis: With applications in R* (2nd ed.). Springer.
5. Shumway, R. H., & Stoffer, D. S. (2017). *Time series analysis and its applications: With R examples* (4th ed.). Springer.
7. Pesaran, M. H., & Shin, Y. (1998). *An autoregressive distributed lag modeling approach to cointegration analysis*. Cambridge University Press.

