

12-7-17

**UNIVERSITY OF SARGODHA, SARGODHA****NOTIFICATION**

No. UOS/Acad/603

Dated: 10.07.2017

On the recommendation of Academic Council made in its meeting dated 23.08.2016, the Syndicate in its 1/2017 meeting held on 15-16.05.2017 has approved the revised curriculum of BS Economics program for implementation w.e.f the session 2009-14 (Annex-'A').

*Amjad* 10/7/17  
**(AMJAD HUSSAIN JANJUA)**  
 Deputy Registrar (Acad)  
 for Registrar

10/07/17

**Distribution:**

- Chairman, Department of Economics
- Controller of Examinations
- Web-Developer *(for uploading on university web-site)*

**C.C:**

- Dean, Faculty of Management & Administrative Sciences
- Secretary to the Vice-Chancellor
- P.A to Registrar
- Notification file

*[Signature]*  
18/7/17

ACE-11  
Nasir Ali  
14/7/17

*[Signature]*  
14/7/17

DCE (SI)

ACE (SI)

13/7

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SCHEME OF STUDIES FOR BS-4 YEARS  
IN ECONOMICS "AT  
UNIVERSITY OF SARGODHA  
2009 & Onward




DEPARTMENT OF ECONOMICS  
UNIVERSITY OF SARGODHA

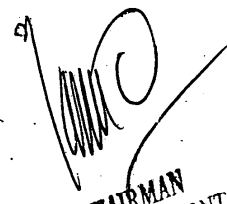
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**University of Sargodha**  
**Department of Economics**  
**Scheme of Studies of B.S (4-years) Economics**

SCHEME OF STUDIES FOR BS (4YEAR) ECONOMICS 2009 onward		
Semester	Name of Subject	Credits
<b>First</b>		
ENG 101	English I	3(3-0)
ECON 102	Principles of Micro Economics	3(3-0)
IST103	Islamic Studies	2(2-0)
MATH 104	Mathematics I	3(3-0)
COMP 105	Introduction to Computer	3(2-1)
PSY 106	Social psychology / <i>Entrepreneurship</i>	3(3-0)
		<b>17</b>
<b>Second</b>		
ENG107	English II	3(3-0)
PAK 108	Pakistan Studies	2(2-0)
ECON 109	Principles of Macro Economics	3(3-0)
MATH110	Mathematics II	3(3-0)
ECON 111	Principles of accounting	3(3-0)
SOC112	<del>Sociology</del> / <i>Intro. to I.R</i>	3(3-0)
		<b>17</b>
<b>Third</b>		
ENG 201	English III	3(3-0)
ECON 202	Intermediate Micro Economics	3(3-0)
ECON 203	Development Economics	3(3-0)
STAT 204	Statistics I	3(3-0)
ECON 205	Principles of Marketing	3(3-0)
ECON 206	Financial Management	3(3-0)
		<b>18</b>
<b>Fourth</b>		
ENG 207	English IV	3(3-0)
ECON 208	Intermediate Macro Economics	3(3-0)
STAT 209	Statistics II	3(3-0)
ECON 210	Agriculture Economics	3(3-0)
ECON 211	Agri. Policy / <i>Political Economy</i>	3(3-0)
ECON 212	Managerial Economics	3(3-0)
		<b>18</b>

  
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Semester	Name of Subject	Credits
<b>Fifth</b>		
ECON 301	Micro Economics	3(3-0)
ECON 302	Econometrics I	3(3-0)
ECON 303	Mathematical Economics I	3(3-0)
ECON 304	Environmental economics	3(3-0)
ECON 305	Agri-Business Marketing and Analysis / <i>Energy Eco</i>	3(3-0)
ECON 306	Resource Economics / <i>Poverty &amp; Income Distribution</i>	3(3-0)
		<b>18</b>
<b>Sixth</b>		
ECON 307	Macro Economics	3(3-0)
ECON 308	Econometrics II	3(3-0)
ECON 309	Mathematical Economics II	3(3-0)
ECON 310	General equilibrium and Welfare Economics	3(3-0)
ECON 311	Monetary Economics	3(3-0)
<b>Seventh</b>		<b>15</b>
ECON 401	International Trade Theory	3(3-0)
ECON 402	Research Methodology	3(3-0)
ECON 403	Public Finance	3(3-0)
ECON 404	History of Economics Thoughts	3(3-0)
ECON 405	Project Appraisal and Investment Analysis	3(3-0)
<b>Eight</b>		<b>15</b>
ECON 406	Applied Economics	3(3-0)
ECON 407	Islamic Economics	3(3-0)
ECON 408	Research paper / <i>ISSUED in Pak Economy</i>	3(3-0)
ECON 409	Operational Research / <i>Economics of Education</i>	3(3-0)
		<b>12</b>



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1

1<sup>st</sup> Semester

ENG-101:

English I

3(3-0)

**Course Aims:**

The aim of this course is to groom the students linguistically in such a manner that they can read and understand different texts written in English (academic or non academic) by applying different strategies of reading. A particular care has been taken to gratify the aesthetic needs of the learners. The basic aim of this course is to develop critical reading and critical thinking among the students. This course also aims to train students to meet the demands of other subjects written in the English language which need to be dealt with at optimal level of efficiency. The course shall enable the learners to develop vocabulary in English by reading dynamic texts and understand different composition patterns in the English language.

- 1: **An introduction to:**
  - a: Language
  - b: Communication
  - c: Grammar
- 2: **Sentence :**  
Definition , Parts : Subject , Predicate , Phrase , Clause,  
Types---simple, compound , complex, multiple, declarative,  
Interrogative, Imperative, Exclamatory, optative .
- 3: **Parts of Speech:**  
Noun , Pronoun, Adjective, Verb, Adverb,  
Preposition, Conjunction, Interjection.  
Error Analysis.
- 4: **Tenses:** Active Voice & Passive Voice.
- 5: **Clause Analysis & Synthesis.**
- 6: **Use of Dictionary & Vocabulary Building.**

**Poems:**

- |                                  |                   |
|----------------------------------|-------------------|
| 1: New Year Resolutions          | Elizabeth Sewell  |
| 2: Tartary                       | Walter De La Mare |
| 3: The Huntsman                  | Edward Lowbury    |
| 4: The Character of A Happy Life | Sir Henry Wotton  |
| 5: One Art                       | Elizabeth Bishop  |
| 6: Death The Leveller            | James Shirley     |

**Short Stories:**

- |                                 |                  |
|---------------------------------|------------------|
| 1: The Duchess And The Jeweller | Virginia Woolf   |
| 2: The Voice                    | S.V. Pritchett   |
| 3: Passion In The Desert        | Honore De Balzac |

**Essays:**

- |                              |                   |
|------------------------------|-------------------|
| 1: Spoon Feeding             | W.R. Inge         |
| 2: Nagasaki, August 9, 1945. | Michaïto Ichimaru |
| 3: My Tailor                 | Stephen Leacock   |
| 4: The Damned Human Race     | Mark Twain        |

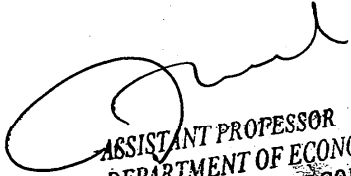
ECON 102

Principles of Micro Economics

3 Cr. Hrs.

**Objectives**

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

  
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## Course Contents

### Introduction

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

### The Price Mechanism

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

### Consumer's Behaviour

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

### Firms and Industries

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

### Production and Cost Functions

Production function, Primary inputs: factors of production, Secondary/intermediate inputs: Raw material and energy, The laws of returns, Revenues of the firm: total, average and marginal revenues, Cost function: Total, average and marginal costs, Short-run and Long-run costs, Equilibrium of the firm.

### Market Structure

Classification of markets according to nature of commodity, extent, time and degree of competition, Perfect competition among buyers and sellers, Imperfect competition: Monopoly and Monoposony, Monopolistic competition, Price determination, The need for market regulation and role of the government, Public goods and their provision beyond the market.

### Recommended Book

- Mankiw, G. - Principles of Economics - 2<sup>nd</sup> Edition (2001), South-West Publishers.
- Samuelson and Nordrons - Economics - 18<sup>th</sup> Edition (2004)- McGraw Hill.
- McConnel and Bruce - Principles of Economics - 17<sup>th</sup> Edition (2006)- McGraw Hill.
- Lipsey and Goerant-Principles of Economics-10<sup>th</sup> Edition (2003)- Oxford University Press

**IST-103: Islamic Studies 2(2-0)**

### Objectives:

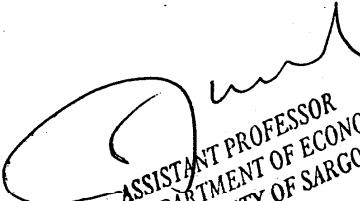
This course is aimed at:

- 1 To provide Basic information about Islamic Studies
- 2 To enhance understanding of the students regarding Islamic Civilization
- 3 To improve Students skill to perform prayers and other worships
- 4 To enhance the skill of the students for understanding of issues related to faith and religious life.

### Detail of Courses

#### Introduction to Quranic Studies

- 1) Basic Concepts of Quran
- 2) History of Quran
- 3) Uloom-ul -Quran

  
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**Study of Selected Text of Holly Quran**

- 1) Verses of Surah Al-Baqra Related to Faith (Verse No-284-286)
- 2) Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
- 3) Verses of Surah Al-Mumanoon Related to Characteristics of faithful (Verse No-1-11)
- 4) Verses of Surah al-Furqan Related to Social Ethics (Verse No.63-77)
- 5) Verses of Surah Al-Inam Related to Ihkam(Verse No-152-154)

**Study of Selected Text of Holly Quran**

- 1) Verses of Surah Al-Ihzab Related to Adab al-Nabi (Verse No.6,21,40,56,57,58.)
- 2) Verses of Surah Al-Hashar (18,19,20) Related to thinking, Day of Judgment
- 3) Verses of Surah Al-Saf Related to Tafakar,Tadabar (Verse No-1,14)

**Seerat of Holy Prophet (S.A.W) I**

- 1) Life of Muhammad Bin Abdullah ( Before Prophet Hood)
- 2) Life of Holy Prophet (S.A.W) in Makkah
- 3) Important Lessons Derived from the life of Holy Prophet in Makkah

**Seerat of Holy Prophet (S.A.W) II**

- 1) Life of Holy Prophet (S.A.W) in Madina
- 2) Important Events of Life Holy Prophet in Madina
- 3) Important Lessons Derived from the life of Holy Prophet in Madina

**Introduction To Sunnah**

- 1) Basic Concepts of Hadith
- 2) History of Hadith
- 3) Kinds of Hadith
- 4) Uloom –ul-Hadith
- 5) Sunnah & Hadith
- 6) Legal Position of Sunnah

**Selected Study from Text of Hadith****Introduction To Islamic Law & Jurisprudence**

- 1) Basic Concepts of Islamic Law & Jurisprudence
- 2) History & Importance of Islamic Law & Jurisprudence
- 3) Sources of Islamic Law & Jurisprudence
- 4) Nature of Differences in Islamic Law
- 5) Islam and Sectarianism

**Islamic Culture & Civilization**

- 1) Basic Concepts of Islamic Culture & Civilization
- 2) Historical Development of Islamic Culture & Civilization
- 3) Characteristics of Islamic Culture & Civilization
- 4) Islamic Culture & Civilization and Contemporary Issues

**Islam & Science**

- 1) Basic Concepts of Islam & Science
- 2) Contributions of Muslims in the Development of Science
- 3) Quranic & Science

**Islamic Economic System**

- 1) Basic Concepts of Islamic Economic System
- 2) Means of Distribution of wealth in Islamic Economics
- 3) Islamic Concept of Riba
- 4) Islamic Ways of Trade & Commerce

**Political System of Islam**

- 1) Basic Concepts of Islamic Political System
- 2) Islamic Concept of Sovereignty
- 3) Basic Institutions of Govt. in Islam

  
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**Islamic History**

- 1) Period of Khlaft-E-Rashida
- 2) Period of Ummayyads
- 3) Period of Abbasids

**Social System of Islam**

- 1) Basic Concepts Of Social System Of Islam
- 2) Elements Of Family
- 3) Ethical Values Of Islam

**Reference Books:**

- 1) Hameed ullah Muhammad, "Emergence of Islam", IRI, Islamabad
- 2) Hameed ullah Muhammad, "Muslim Conduct of State"
- 3) Hameed ullah Muhammad, "Introduction to Islam"
- 4) Mulana Muhammad Yousaf Islahi,
- 5) Hussain Hamid Hassan, "An Introduction to the Study of Islamic Law" leaf Publication Islamabad, Pakistan.
- 6) Ahmad Hasan, "Principles of Islamic Jurisprudence" Islamic Research Institute, International Islamic University, Islamabad (1993)
- 7) Mir Waliullah, "Muslim Jrisprudence and the Quranic Law of Crimes" Islamic Book Service (1982)
- 8) H.S. Bhatia, "Studies in Islamic Law, Religion and Society" Deep & Deep Publications New Delhi (1989)
- 9) Dr. Muhammad Zia-ul-Haq, "Introduction to Al Shariah Al Islamia" Allama Iqbal Open University, Islamabad (2001)

**MATH-104:****Mathematics I (Algebra)****3(3-0)**

**Specific Objectives of the Course:** To prepare the students, not majoring in mathematics, with the essential tools of algebra to apply the concepts and the techniques in their respective disciplines.

**Course Outline:**

**Preliminaries:** Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions. **Matrices:** Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.

**Quadratic Equations:** Solution of quadratic equations, qualitative analysis of roots of a quadratic equations, equations reducible to quadratic equations, cube roots of unity, relation between roots and coefficients of quadratic equations.

**Sequences and Series:** Arithmetic progression, geometric progression, harmonic progression.

**Binomial Theorem:** Introduction to mathematical induction, binomial theorem with rational and irrational indices.

**Trigonometry:** Fundamentals of trigonometry, trigonometric identities.

**Recommended Books:**

Dolciani MP, Wooton W, Beckenback EF, Sharron S, *Algebra 2 and Trigonometry*, 1978, Houghton & Mifflin,

Boston (suggested text)

Kaufmann JE, *College Algebra and Trigonometry*, 1987, PWS-Kent Company, Boston

Swokowski EW, *Fundamentals of Algebra and Trigonometry* (6<sup>th</sup> edition), 1986, PWS-Kent Company, Boston

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**COMP-105: Introduction to Computer****3(2-1)****Course Outlines**

Fundamentals of computer: introduction; characteristics, computer generation, basic computer organizations, and computer software; Disk Operating System: definition, features, types of command to MS-DOS; Windows operating system; Word processor, Spread Sheet: MS-Excel etc; designing presentations; and Searching for information. The course will also cover Statistical Packages like SPSS, SAS for Social Scientists.

**Books Recommended**

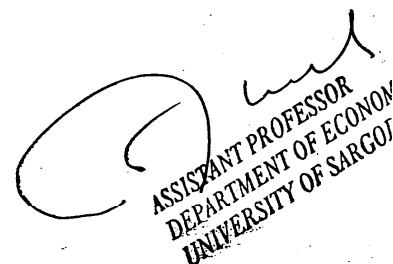
1. Shelly, G.B.Thomas J. Gloria & A.Waggoner, 1996. *Using Computers. A Gateway to information.* Shelly Cashman Series, USA.
2. *Manual of SPSS Packages, Version 11, 2002.*
3. Altman, R.B 1999, *Visual Quick starts guide; Power point 2000 for Windows*, Berkley: Peach Pit.
4. Bott, E.D. 2000, *Special Microsoft-Office 2000*. New Delhi, Prentice-Hall, India.
5. Minasi, M., Anderson, C Smith.B.M. & Loombs, D. *Mastering Windows 2000 (Server)* New Delhi, BPB publication.
6. Sinnah, P.K. 2000, *Fundamentals of Computer*, New Delhi Prentice Hall of India

**PSY-106: Social Psychology****3(3-0)**

Nature and scope of social psychology; social perceptions: knowing others; social cognition: understanding the social world; interpersonal communication; social situations and social skills; attitudes: evaluating the social world; Social influence: changing others behaviors; and group and individuals: The consequences of belonging.

**Books Recommended:**

1. Baron, R.A. Byrene D. and Johnson, B.T. (1998), *Exploring Social Psychology* (4<sup>th</sup> edition), Ayllon & Bacon, London
2. Callon V.J, Gallois, C. Noller and Kashima, Y (1991) *Social Psychology* (2<sup>nd</sup> edition), Harcourt Australia PTV Limited
3. Myers G.R. 2003, *Social Psychology* (6<sup>th</sup> edition) Prentice Hall N.Y.

  
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2<sup>nd</sup> SemesterENG 107: English II 3(3-0)**Course Aims:**

The aim of this course is to groom the students linguistically in such a manner that they can read and understand different texts written in English (academic or non academic) by applying different strategies of reading. A particular care has been taken to gratify the aesthetic needs of the learners. The basic aim of this course is to develop critical reading and critical thinking among the students. This course also aims to train students to meet the demands of other subjects written in the English language which need to be dealt with at optimal level of efficiency. The course shall enable the learners to develop vocabulary in English by reading dynamic texts and understand different composition patterns in the English language.

- Narration
- Punctuation
- Note-Taking
- Oral Presentation Skills
- Paragraph Writing

**Poems:**

- |    |   |                    |
|----|---|--------------------|
| 1. | The Divine Image                        | William Blake      |
| 2. | Sonnet Composed Upon Westminster Bridge | William Wordsworth |
| 3. | Youth and Age                           | S.T. Coleridge     |
| 4. | To Wordsworth                           | P.B. Shelley       |
| 5. | Patriot into Traitor                    | Robert Browning    |
| 6. | When You Are Old                        | W. B. Yeats.       |

**Short Stories:**

- |    |                      |                |
|----|----------------------|----------------|
| 1. | Mayhew               | S. Maugham     |
| 2. | The New Constitution | S. H. Manto    |
| 3. | Breakfast            | John Steinbeck |

**One Act Plays:**

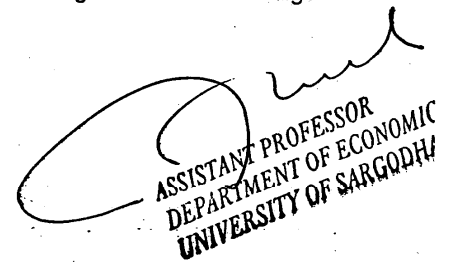
- |    |               |                  |
|----|---------------|------------------|
| 1. | The Bear      | Anton Chekhov    |
| 2. | Smoke Screens | Harold Brighouse |

**Essays:**

- |    |  |                |
|----|--|----------------|
| 1. | Quid-e-Azam's Address to the Constituent Assembly. |                |
| 2. | Seeing Life  | Arnold Bennet  |
| 3. | The Last Lesson                                    | Alphonse Daude |

PAK 108: Pakistan Studies 2(2-0)**Introduction/Objectives**

- Develop vision of historical perspective, government, politics, contemporary Pakistan, ideological background of Pakistan.
- Study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

  
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## Course Outline

### 1. Historical Perspective

- a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allāma Muḥammad Iqbal and Quaid-i-Azam Muhammad Ali Jinnah.
- b. Factors leading to Muslim separatism
- c. People and Land
  - i. Indus Civilization
  - ii. Muslim advent
  - iii. Location and geo-physical features.

### 2. Government and Politics in Pakistan

Political and constitutional phases:

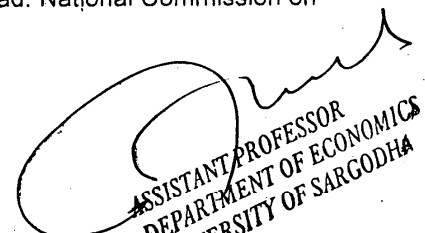
- a. 1947-58
- b. 1958-71
- c. 1971-77
- d. 1977-88
- e. 1988-99
- f. 1999 onward

### 3. Contemporary Pakistan

- a. Economic institutions and issues
- b. Society and social structure
- c. Ethnicity
- d. Foreign policy of Pakistan and challenges
- e. Futuristic outlook of Pakistan

### Books Recommended

1. Burki, Shahid Javed. *State & Society in Pakistan*, The Macmillan Press Ltd 1980.
2. Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press, 2000.
3. S.M. Burke and Lawrence Ziring. *Pakistan's Foreign policy: An Historical analysis*. Karachi: Oxford University Press, 1993.
4. Mehmood, Safdar. *Pakistan Political Roots & Development*. Lahore, 1994.
5. Wilcox, Wayne. *The Emergence of Banglades.*, Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
7. Amin, Tahir. *Ethno - National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad
8. Ziring, Lawrence. *Enigma of Political Development*. Kent England: WmDawson & sons Ltd, 1980.
9. Zahid, Ansar. *History & Culture of Sindh*. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.
11. Sayeed, Khalid Bin. *The Political System of Pakistan*. Boston: Houghton Mifflin, 1967.
12. Aziz, K.K. *Party, Politics in Pakistan*, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, *Pakistan Under Martial Law*, Lahore: Vanguard, 1987.
14. Haq, Noor ul. *Making of Pakistan: The Military Perspective*. Islamabad: National Commission on Historical and Cultural Research, 1993.

  
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**Objectives**

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

**Course Contents****Introduction**

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

**National Income**

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

**Components of Aggregate Demand**

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

**Money and Banking**

Money: definition, forms and functions, Central Bank and its functions with reference to the State Bank of Pakistan, Commercial banking, The Quantity Theory of money, Inflation: measurement and impacts, causes of inflation and remedies, Monetary policy: brief introduction.

**Public Finance and Taxation**

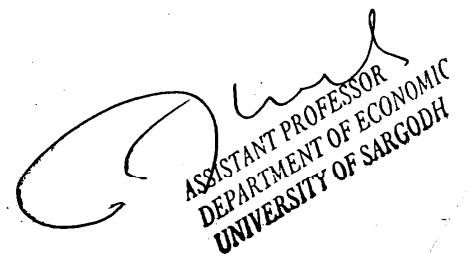
Sources of public revenue, Various forms of taxes: Direct and Indirect, Income and Commodity taxes, Sales, Excise, Customs, Non-tax revenues, Major heads of public expenditure, Revenue and Capital account, Concept of budget deficits and sources of filling the gaps, Deficit financing, Fiscal policy: meaning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

**International Trade**

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

**Recommended Books**

- Mankiw, G—Principles of Economics-2<sup>nd</sup> Edition (2001)- South-West Publishers.
- Samuelson and Nordrons - Economics -18<sup>th</sup> Edition (2004)- McGraw Hill. Inc.
- Parkin, Michael - Macroeconomics, 7<sup>th</sup> Edition (2004)- Prentice Hall.
- Miller, R.L.— Economics Today -14<sup>th</sup> Edition (2005) - Addison Wesley.

  
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**MATH 110: Mathematics II 3(3-0)**

**Specific Objectives of the Course:** To prepare the students, not majoring in mathematics, with the essential tools of calculus to apply the concepts and the techniques in their respective disciplines.

**Course Outline:**

**Preliminaries:** Real-number line, functions and their graphs, solution of equations involving absolute values, inequalities. **Limits and Continuity:** Limit of a function, left-hand and right-hand limits, continuity, continuous functions.

**Derivatives and their Applications:** Differentiable functions, differentiation of polynomial, rational and transcendental functions, derivatives.

**Integration and Definite Integrals:** Techniques of evaluating indefinite integrals; integration by substitution; integration by parts, change of variables in indefinite integrals.

**Recommended Books:**

Anton H, Bevens I, Davis S, *Calculus: A New Horizon* (8<sup>th</sup> edition), 2005, John Wiley, New York  
 Stewart J, *Calculus* (3<sup>rd</sup> edition), 1995, Brooks/Cole (suggested text)  
 Swokowski EW, *Calculus and Analytic Geometry*, 1983, PWS-Kent Company, Boston  
 Thomas GB, Finney AR, *Calculus* (11<sup>th</sup> edition), 2005, Addison-Wesley,

**ECON 111: Principles of Accounting 3(3-0)**

Accounting principles and concepts. Rules of debit/ credit. Assets, liabilities and owners equity. Accounting cycle, book keeping, journal, ledger, trial balance, adjusting entries, closing entries, worksheet. Statement of owner equity, control of cash transaction, depreciation, type of depreciation. Economics for managers. Understanding financial statements, multi-step financial statements, income statement, balance sheet. Analyzing financial statements: different kinds of financial ratios and their use, financial analysis and decision making, limitations of financial analysis. Financing the agri. Business: different kind of capital, various kinds of loans, cost of different kind of borrowing, choice of lending institutions and preparation or loan. Case studies

**Books**

1. Vinayaham, M. and K. L. Magrafan. 1992. *Principles of Accounting*, Eurasia, Publication House, New Delhi.
2. Summers, E.L. 1989. *Accounting Information System*. Houghton Mifflin Co. Boston.
3. Meigs and Meigs 1986. *Financial Accounting*. Macmillan Publishing Co. New York.

**SOC 112: Sociology 3(3-0)**

**Introduction**

- Nature, scope and subject matter of Sociology
- Society and community
- Relationship with other social
- Sociology as a science
- The Sociological imagination
- The development of Sociology
- Pioneers of Sociology

**Social groups**

- Definition and functions
- Types of social groups

  
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### **Social institutions**

- Definition
- Structure and function of social institutions
- Inter-relationships among various social institutions

### **Culture and related concepts**

- Definition and aspects of culture
- Elements of culture
- Organization of culture
- Other concepts, cultural relativism, sub cultures, ethnocentrism, cultural lag

### **Socialization and personality**

- Role and status
- Socialization, agents of socialization
- Culture and personality

### **Deviance and social control**

- Definition and types of deviance
- Juvenile delinquency
- Formal and informal methods of social control

### **Social stratification**

- Approach to study social stratification
- Caste class and race as basics of social stratification

### **Concept of social movement**

- Theories of social movement
- Social and cultural change
- Collective behavior
- Definition
- Characteristics
- Causes
- Types
- Social movements
- Mob and crowd behavior

### **Social and cultural change**

- Definition of social change
- Dynamics of social change
- Impact of globalization on society and culture
- Resistance to change

### **BOOKS RECOMMENDED:**

1. Horton & Hunt, (205), Sociology, 7<sup>th</sup> Edition,
2. Kendall, Diana, (2001), Sociology in our times, 32nd Edition, Wadsworth.
3. James. M. Hensline, (1997), Sociology, Needhan Heigwb, Massachusetts, USA.
4. George J. Brgjar, Michael P. Soroke, (1997), Sociology, Needhan Heigwb, Massachusetts, USA.

  
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## 3<sup>rd</sup> Semester

### ENG 201: English III 3(3-0)

#### **Course Aims:**

The aim of this course is to train the students in such a manner that they can comprehend and understand different English text patterns by applying different analytical strategies. A particular care has been taken to gratify the aesthetic needs of the learners. The basic aim of this course is to develop critical reading and critical thinking among the students. The course shall enable the learners to develop vocabulary in English by reading dynamic texts and understand different composition patterns in the English language. It shall also give them orientation to different literary genres so that they could themselves be able to compose variety of texts independently.

- Letter Writing: (Official / Formal and must discuss some problem)
- Essay writing
- Reading Skills
- Listening Skills

#### **Poetry:**

- |    |                         |                     |
|----|-------------------------|---------------------|
| 1. | All The World's A Stage | William Shakespeare |
| 2. | On His Blindness        | John Milton         |
| 3. | Ode To Autumn           | John Keats          |
| 4. | No Buyers               | Thomas Hardy        |
| 5. | Prayer Before Birth     | Louis MacNiece      |
| 6. | The Owl Critic          | J.T. Field          |

#### **Essays:**

- |    |                                  |                  |
|----|----------------------------------|------------------|
| 1. | One Vote For This Age of Anxiety | Margaret Mead    |
| 2. | On Babies                        | Jerome K. Jerome |
| 3. | Islamic Culture                  | M. M. Pickthal   |

#### **Short Stories**

- |    |                  |                 |
|----|------------------|-----------------|
| 1. | Take Pity        | Bernard Malamud |
| 2. | The Necklace     | G.D. Maupassant |
| 3. | The Happy Prince | Oscar Wilde     |

#### **One Act Plays:**

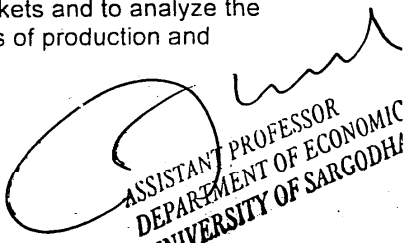
- |    |                         |              |
|----|-------------------------|--------------|
| 1. | Even Exchange           | Paul S McCoy |
| 2. | The Master of The House | W.S. Houston |

### ECON 202: Intermediate Micro Economics 3(3-0)

#### **Objectives**

The objective of the course is to clarify and extend further the microeconomic concepts and to develop analytical skills and solving petty problems. In addition to diagrammatic approach, the students ought to get accustomed to simple mathematics and numerical tools. The teacher is expected to draw examples from surroundings for exposition.

The students may be given assignments to collect information from the markets and to analyze the data. They may have tours to the industrial units and to observe the process of production and problems in supply and demand.

  
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## Course Contents

### Introduction

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

### Theory of Consumer Behaviour

Axioms of Rationality, The utility function and its arguments, Laws of diminishing marginal and equi-marginal utility, Indifference curves and their properties, Concepts of imperfect substitutes and complements, Marginal rate of (commodity) substitution (MRCS), Convexity of indifference curve and diminishing MRS, The budget constraint, Consumer's equilibrium and law of equi-marginal utility, Income & Substitution effects of a price change: diagrammatic representation, Normal, Inferior and Giffen goods, Gross substitutes and net substitutes, The indirect utility function, Non-homothetic Preferences, Introduction to the Revealed Preference Theory.

### Demand & Elasticity

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

### Production Functions

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

### Cost of Production

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

### Behaviour of the Firm

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

### Market Structure and Price Determination

#### (i) The Perfectly Competitive Market

Assumptions of the model, Pure and Perfect Competition, Short-run and Long-run equilibrium of competitive firms, Supply functions in the short and long-run, Constant-cost and increasing-cost industries, Derivation of equilibrium Prices and Quantity using simple equations.

#### (ii) Monopoly and Monopsony

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

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**(iii) Monopolistic Competition and Oligopoly**

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

**Pricing of the Factors of Production**

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

**Recommended Books**

- Pindyck and Rubinfeld with Mehta- Microeconomics- 6<sup>th</sup> Edition (2005)-
- Pearson Education, Singapore
- Walter Nicholson- Intermediate Microeconomics- 6<sup>th</sup> Edition (1994) or latest –
- The Dryden Press: Harcourt Brace College Publishers
- Koutsoyiannis, A.-Modern Microeconomics- 2<sup>nd</sup> edition (1979)-Macmillan.
- Varian Hall R.- Intermediate Microeconomics: Modern Approach- 6<sup>th</sup> edition (2002)- W. W. Norton Publishing Company, New York.
- Leftwich, Eckert – The Price System and Resource Allocation – 10<sup>th</sup> Edition (1988) or latest- The Dryden Press, New York.
- Dowling, Edward – Mathematics for Economists -(1980) - (Schaum's Outline Series) McGraw Hill Inc.

**ECON 203: Development Economics 3(3-0)**

**Course Contents****Scope and New Developments**

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

**Major Theories of Development**

Classical and Neo-classical Theories, Adam Smith and Competitive Capitalism, Vicious Circle of Poverty, Stages of Economic Growth, Balanced and Unbalanced Growth, Big Push Theory. Dependency Theory, Structuralist's View Point. Endogenous Growth Theory: New growth Theory. Income Convergence/Divergence debate. Market Friendly Approach.

**Agriculture and Industry**

Agriculture vs. Industry: Development Debate. Lewis' Model of surplus Labor. Rains' Fei Model and its critical review. Transforming Agriculture, Underemployment problem. Role of Agriculture: Market for Industrial Output, Provision of Input, food, Complementarities, productivity growth. Terms of Trade Issue and Subsidies, etc. and Competitiveness. Land Holdings, Green Revolution and its Performance: Need for Industrialization. Industrialization and its financing mechanism. Problem of Sectoral Dualism. Why Green Revolution? The Spread of Green Revolution in Pakistan and its Status / Contributions.

**Population, Education and Human Capital**

Demographic Transition, Human Resources as a source of growth and their contributions. Investment in education and returns. Models of Employment & Unemployment: Time Criterion, Productivity Criterion and New Index etc., and Employment generation Strategies/Techniques.

**International Debt, Aid / Assistance**

Why international borrowing? Two Gap Model, Aid commitments and disbursement. Sources of borrowing. Debt Cycle Theory/Stages. Debt Burden: Debt Servicing, Debt Laffer Curve, Debt buy

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back etc., Latin American Debt Crises, ASEAN Crises, Debt Problem of LDC's and South Asia, Debt Overhang and threat to growth. Policies to combat debt problem: Forecasting debt and solution for debt burden, saving mobilization/Domestic resource mobilization, Debt rescheduling etc. Debt Modeling and Forecasting Future Implication.

### **WTO, Liberalization and International Trade**

Trade vs. Aid. Liberalization of Trade and its impacts/gains etc., Foreign Exchange Constraints and Balance of Payment deficit. Role of GATT and its Failure. WTO and LDC's. Trade Instability, Distribution of gains from Trade liberalization. Regional Trade Associations (RTA's): their role and contributions. Basis for trade and benefits: Gains from Trade: Static and Dynamic Gains. Comparative Advantage, Revealed Comparative Advantage and Competitiveness. Trade as an engine of growth. Product Cycle. Determinants of exports growth. Transfer of Technology: Sources & Need. Technology Centered Development and Appropriate technology issue.

### **Poverty and Income Distribution**

Definitions and Measurement of Poverty/Poverty Line. Poverty concepts/definitions. Absolute Poverty, Relative Poverty, Income approach, Expenditure approach, Basic needs approach, Poverty of Opportunities Index (POPI) and Calorie-based approach etc. Poverty Indicators. Poverty by socio-economic groups. Sources, impacts and policies to combat poverty. Strategies and tools to combat poverty. Growth and Income Inequality in the world. Empirical evidences on poverty. Redistribution with growth. How to combat income inequality. Basic Needs, Social Action Programs and Poverty alleviation.

### **Economic Growth and Environment**

Model of Environment and Economic Activity. Market Based Approach and Externalities. Deforestation and Renewable Resources, Measuring environment values. Deforestation and Macroeconomic Environment. Industrialization and its environmental cost, Use of Pesticides and Environmental Impacts. Natural resources degradation. Cost of Pollutions/Environmental degradation. International awareness about environment, production and need for Reforms. Economic thoughts and Environment. International Agencies: Environmental concerns and programs. Urbanization and environmental issues. Sustained development, Ecology and economic progress.

### **Recommended Books**

- Balasubramanyam V. and Lall, S. (Latest eds.), Current Issues in Development Economics. McMillan, London.
- Chaudhary M. Aslam and Hamid, A., (1989). Human Resource Development and Management in Pakistan. Ferozsons, Lahore.
- Chaudhary M. Aslam and Eatzaz, A., (2004), Globalization: WTO, Trade and Economic Liberalization in Pakistan, Ferozsons, Lahore, Pakistan.
- Chenery H. B. and Srinivasen. Hand Book of Development Economics, vol. I & II, Amsterdam (1988, eds.). North Holland.
- Cypher J. M. and Dietz James L., (2004), The Process of Economic Development, Routledge. Tayl or Francis Group, London/New York.
- Ghatak Subarta, (2003), Introduction to Development Economics, Routledge, Taylor and Francis Group, London/New York.
- Herrick B. and Kindleberger C., (latest eds.). Economic Development. McMillan, New York.
- Hirshman A. O., (1960). Strategy of Economic Development, Yale University, Press.
- Jones H. G., An Introduction to Modern Theories of Economic Growth, (Latest Edition), McGraw Hills.
- Mahboob-ul-Haq Center for Human Development (MHCHD). Human Development in South Asia, Annual Reports, Islamabad.
- (1999), A Profile of Poverty In Pakistan, (In Collaboration with UNDP).
- Meier Gerald M., Leading Issues in Economic Development, (Latest Issue), Oxford University Press.

  
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**STAT 204: Statistics I 3(3-0)**

**Unit 1. What is Statistics?**

Definition of Statistics, Population, sample Descriptive and inferential Statistics, Observations, Data, Discrete and continuous variables, Errors of measurement, Significant digits, Rounding of a Number, Collection of primary and secondary data, Sources, Editing of Data. Exercises.

**Unit 2. Presentation of Data**

Introduction, basic principles of classification and Tabulation, Constructing of a frequency distribution, Relative and Cumulative frequency distribution, Diagrams, Graphs and their Construction, Bar charts, Pie chart, Histogram, Frequency polygon and Frequency curve, Cumulative Frequency Polygon or Ogive, Histogram, Ogive for Discrete Variable. Types of frequency curves. Exercises.

**Unit 3. Measures of Central Tendency**

Introduction, Different types of Averages, Quantiles, The Mode, Empirical Relation between Mean, Median and mode, Relative Merits and Demerits of various Averages, properties of Good Average, Box and Whisker Plot, Stem and Leaf Display, definition of outliers and their detection. Exercises.

**Unit 4. Measures of Dispersion**

Introduction, Absolute and relative measures, Range, The semi-Inter-quartile Range, The Mean Deviation, The Variance and standard deviation, Change of origin and scale, Interpretation of the standard Deviation, Coefficient of variation, Properties of variance and standard Deviation, Standardized variables, Moments and Moments ratios. Exercises.

**Unit 5. Probability and Probability Distributions.**

Discrete and continuous distributions: Binomial, Poisson and Normal Distribution. Exercises

**Recommended Books**

- Walpole, R. E. 1982. "Introduction to Statistics", 3rd Ed., Macmillan Publishing Co., Inc. New York.
- Muhammad, F. 2005. "Statistical Methods and Data Analysis", Kitab Markaz, Bhawana Bazar Faisalabad.

**ECON 205: Principles of Marketing 3(3-0)**

**Introduction to Marketing**

Key Marketing Concepts, Scope of Marketing, Evolution of Marketing, Importance of Marketing, Marketing as an Exchange Process, Marketing as a Demand Management Tool, Marketing Cost and Price Relationship.

**Supply Chain / Value Chain Management**

Primary and Secondary activities in Supply Chain / Value Chain. Identify and Maximizing linkages within the Various Activities.

**Strategic Marketing Planning Process**

The SMP Process. The BCG Matrix, GE Nine Cell Model and Porter's Generic Strategies Models of SMP.

**International Market mg: The Target Markets & Marketing Mix**

Identify Target Markets, Forecasting Market Demand, The Target Market Strategies, Key Elements of Marketing Mix, Local Vs. International Marketing, International Marketing Strategy and Planning, Organizational Structure of International Markets, Exporting, Contracting, International Corporations and their Marketing Techniques. The Promotional Program, the Key Components of Promotional Mix.

**Product Management**

The Consumer and Industrial Products. Product Planning and Development, Product Adoption and Diffusion, Product Life Cycle, Product Positioning and

Differentiation, Product Mix Strategies.

#### **Marketing Cost, Finance and Cost Management**

Analysis of Cost, Marketing Cost for Products, Reasons for Higher Cost and Methods to Minimize. Abuses and Advantages of Marketing Cost Debate over Legitimacy Solution, Need for Marketing Finance. Kinds of Marketing Financing. Significance of Prices, Methods of Price Determination. Key Pricing Strategies. Price WETS.

#### **Distribution Management and Market Intermediaries**

Designing Distribution Networks. Channels Conflict and Channel Power. Physical Distribution. The Wholesale Market, Retail Marketing.

#### **Consumer's and Buyer's Behaviours**

Consumer Motive to Marketing, Models of Consumer, Buyer Behaviour, Influences on Buyer's Behaviour, Industrial Buyer Behaviour. Decision making behaviour.

#### **Managing Marketing in Various Forms of Competition**

Industrial Analysis, Industry and Market Concepts of Competition, Strategies of Leaders, Challengers, Followers and Nichers. Global Marketing, Industrial Marketing, Services Marketing, Agricultural Marketing.

#### **Managing Total Marketing Effort**

Key Organizations for Marketing, Market Control, Marketing Audit.

#### **Segmentation and Targeting**

Significance, Advantages of Market Segmentation, Segmentation Variables, Segmenting Industrial Markets, Effectives of Segmentation, Market Targeting, Strategic Opinion.

#### **Pricing Strategies and Sales**

Theories of Pricing and Value. Supply and Demand Model, Mark-up Pricing, Dumping, Economic Choice, Pricing and Market Orientation, Market Share, Cost based Pricing, Customer based Pricing Methods, Competitor based Pricing war. Short-run and Long-run Pricing, Predicting Future Conditions Forecasting Sales and difference Pricing Policies, Data Analysis and Sales Forecasting, Survey and Price Analysis, Profit and other Motives for Pricing.

#### **Text Books**

1. Kotler, P. and Armstrong, G. 2008. Principal of Marketing. 12<sup>th</sup> Edition Prentice-Hall International, Inc.

#### **Recommended Books**

1. "Basic Marketing" 8<sup>th</sup> edition by Jerome McCarthy, Prentice Hall.
2. "Marketing Management: Strategic Approach with a Global Orientation" 3<sup>rd</sup> Edition by Boyd H.W., Latest edition.
3. "Principles of Marketing" by R.D. Tousley, Eugene Clark, Latest edition.
4. "The Fundamentals of Marketing" 11<sup>th</sup> Edition by Etzel, Walker & Stanton, McGraw Hill (or latest edition)

**ECON 206:**

**Financial Management**

**3(3-0)**

#### **COURSE OBJECTIVE**

This course focuses on the application of modern financial techniques to operating and investing decisions. It comprehensively analyzes working capital management and capital budgeting decisions within the context of the firm's business strategy. The course is designed for managers in non-financial functions and financial analysts and managers in financial lending organizations who make

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working capital loan decisions and it ensures students reach a proficient level of professional applicability.

## **COURSE OUTLINE**

### **Introduction to Financial Management**

- *The Role of Financial Management*
  - Defining Financial Management
  - Goal of the Firm
  - Organization of the Financial Management Functions
- *The Business, Tax and Financial Environments*
  - The Business Environment
  - The Tax Environment
  - The Financial Environment

### **Tools of Financial analysis and Planning**

- *Financial Statement Analysis*
  - Financial statements
  - Balance sheet ratios
  - Income statement and income Statement/Balance Sheet Ratios
  - Trend analysis
  - Common-size and index analysis
- *Cash-Flow Analysis and Financial Planning*
  - Accounting statement of Cash Flows
  - Cash-flow forecasting
  - Range of Cash-flow estimates
  - Forecasting Financial Statements

### **Valuation**

- The Time Value of Money
  - The interest rate
  - Simple and Compound interest
  - Compounding more than once a year
  - Amortizing a loan
- *The Valuation of long-term Securities*
  - Distinctions among valuation concepts
  - Bond Valuation
  - Preferred stock valuation
  - Common stock valuation
  - Rates of Return (or Yields)

### **Risk and Return**

- Defining risk and return
- Using probability distributions to measure risk
- Attitudes toward risk
- Risk and return in a portfolio context
- Diversification
- The capital asset pricing model

### **Cost of Capital**

- Required Returns and the Cost of Capital
  - Overall cost of capital of the Firm
  - The CAPM: Project-Specific and Group-Specific required rates of return
  - Evaluation of Projects on the Basis of Their Total Risk
- *Operating and Financial Leverage*
  - Operating Leverage
  - Financial Leverage
  - Total leverage
  - Cash-Flow ability to service debt

### **Working Capital Management-I**

- Overview of Working Capital Management

  
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- Working capital issues
- Financing current assets: Short-term and Long-term Mix
- Combining liability structure
- *Cash and Marketable Securities Management*
  - Motives for holding cash
  - Speeding up cash receipts
  - Slowing down Cash pay-outs
  - Electronic Commerce
  - Investment in marketable securities

#### **Working Capital Management-II**

- *Accounts Receivable and Inventory Management*
  - Credit and collection policies
  - Analyzing the credit applicant
  - Inventory management and control
- *Short-term Financing*
  - Spontaneous financing
  - Negotiated financing:
  - Factoring accounts receivable
  - Composition of short-term financing

#### **Investment in Capital Assets**

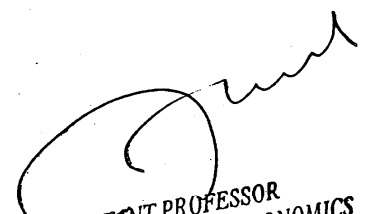
- Overview of capital budgeting process
- Estimating project "After-Tax incremental operating cash flows"
- Capital Budgeting Techniques
- Project evaluation and selection: Alternative Methods
- Risk and Managerial Options in Capital Budgeting

#### **Long-term Financing**

- *Long-Term Debt, Preferred Stock and Common Stock*
  - Types of long-term debt instruments
  - Bonds and their features
  - Preferred stock and its features
  - Common stock and its features
  - Dual-class common stock
- *The Loans and Leases*
  - Term loans
  - Provisions of loan agreements
  - Equipment financing
  - Lease Financing
  - Lease financing vs. debt financing

#### **Recommended Books:**

- Fundamentals of Financial Management By James C. Van Horn 12<sup>th</sup> Edition
- Principles of Managerial Finance By Lawrence J. Gitman 10<sup>th</sup> Edition

  
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## 4<sup>th</sup> Semester

**ENG 207: English IV**

**3(3-0)**

**Course Aims:**

The aim of this course is to train the students in such a manner that they can comprehend and understand different English text patterns by applying different analytical strategies. A particular care has been taken to gratify the aesthetic needs of the learners. The basic aim of this course is to develop critical reading and critical thinking among the students. The course shall enable the learners to develop vocabulary in English by reading dynamic texts and understand different composition patterns in the English language. It shall also give them orientation to different literary genres so that they could themselves be able to compose variety of texts independently.

- Interviews
- Memorandum Writing
- Comprehension & Precie-Writing
- Job-Letter & C. V. Writing
- Report- Writing

**Poetry:**

- |  |                  |
|--|------------------|
| 1. Departure And Arrival               | T.S. Eliot       |
| 2. The Road Not Taken                  | Robert Frost     |
| 3. Because I could not stop For Death  | Emily Dickinson  |
| 4. Say This City Has Ten Million Souls | W. H. Auden      |
| 5. The Daisy                           | Francis Thompson |
| 6. Woman Work                          | Maya Angelou     |

**Short Stories:**

- |                    |                     |
|--------------------|---------------------|
| 1. The Fly         | Katherine Mansfield |
| 2. Araby           | James Joyce         |
| 3. Tell-Tale Heart | E.A. Poe            |

**Essays:**

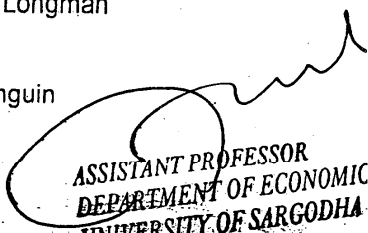
- |  |                 |
|--|-----------------|
| 1. The Last Sermon by Holy Prophet (Peace Be Upon Him) |                 |
| 2. Work  | Bertrand Russel |
| 3. Three Days to See                                   | Helen Keller    |

**Novel:**

- |                            |                  |
|----------------------------|------------------|
| 1. The Old Man And The Sea | Ernest Hemingway |
|----------------------------|------------------|

**Reading List:**

- Burns & McNamara (1987) *Literature: A Close Study*. McMillan
- Burton, S.H. (1984) *Mastering English Language*. McMillan
- Devitiis, Mariani & O'Malley (1991) *English Grammar for Communication*. Longman
- Gill, G. (1985) *Mastering English Literature*. McMillan
- Guddon, J.A. (1991) *Dictionary of Literary Terms and Literary Theory*. Penguin

  
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- Herta A. Murphy & Herbert W. Hildebrandt(1991) Effective Business Communication McGRAW-HILL, INC
- Marie M. Stewart..et.al (1985).Business English And Communication McGRAW-HILL, INC.
- P.C. Wren & H. Martin High School English Grammar & Composition.
- Swan, M.and Catherine (2001) How English Works.OUP.

**ECON 208: Intermediate Macro Economics 3(3-0)**

**Objectives**

The objective of the course is to clarify and extend further the concepts of macroeconomics so as they develop the capacity to understand the issues and problems of the economy in a global scenario. In particular, they have to capture the nature and scope of various public policies. In addition to diagrammatic approach, the students are confronted to simple mathematical and numerical analysis. The teacher is expected to draw examples from the surrounding world for exposition.

The students may be given assignments to collect information about various aspects of the economy. They have to read and understand the Economic Survey and Annual Reports of the State Bank of Pakistan. They may be asked to discuss the Federal and Provincial Budgets and to analyze the framework.

**Course Contents**

**Introduction**

The Keynesian revolution and growth of Macroeconomics, Actual vs. Potential Output, Analytical approach to macroeconomics, Oken's Law and unemployment, Price Indices and Inflation, The simple macroeconomic models, Lead and Lagged variables, Exogenous and Endogenous variables and their functional relationships, Introduction to the Classical and Keynesian Schools of Thought.

**Measurement of National Income**

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

**Theories of Consumption**

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

**Saving and Investment**

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

**The Demand for and Supply of Money**

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

**Determination of National Income**

The Keynesian model for a simple two-sector economy, inflationary and deflationary gaps, The concepts of multiplier, Interaction of the IS and LM functions and derivation of the aggregate demand

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function, The impact of changes in public expenditure, taxation and money supply on aggregate demand and the rate of interest.

### **Aggregate Supply and the Labour Market**

The aggregate production function, Demand for Labor in the short run, Labor market and its Equilibrium: The flexible and sticky wage models, The imperfect information model, The short-run aggregate supply function, The concepts of full-employment and underemployment, Supply shocks and stabilization, Interaction of aggregate demand and supply and price determination.

### **Inflation and Unemployment**

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

### **Recommended Books**

- Shapiro, Edward – Macroeconomic Analysis- 7<sup>th</sup> Edition (2000) – Harcourt Brace Inc.
- Froyen, Richard – Macroeconomics: Theories and Policies – 7<sup>th</sup> Edition (2002) – Macmillan
- Mankiw, Gregory N. - Macroeconomics - 6<sup>th</sup> Edition (2007), Worth Publishers, NY.
- Blanchard, Oliver – Macroeconomics - 2<sup>nd</sup> Edition (2000) - Prentice Hall International.
- Dornbusch & Fisher – Macroeconomics- 9<sup>th</sup> Edition (2004) - McGraw Hill Inc.
- Pakistan Economic Survey (latest), Annual reports of the State Bank of Pakistan, Federal and Provincial Budgets (latest).

**STAT 209:**

**Statistics II**

**3(3-0)**

#### **Unit 1. Sampling and Sampling Distributions**

Introduction, sample design and sampling frame, bias, sampling and non sampling errors, sampling with and without replacement, probability and non-probability sampling, Sampling distributions for single mean and proportion, Difference of means and proportions. Exercises.

#### **Unit 2 Hypothesis Testing**

Introduction, Statistical problem, null and alternative hypothesis, Type-I and Type-II errors, level of significance, Test statistics, acceptance and rejection regions, general procedure for testing of hypothesis. Exercises.

#### **Unit 3 Testing of Hypothesis- Single Population**

Introduction, Testing of hypothesis and confidence interval about the population mean and proportion for small and large samples, Exercises

#### **Unit 4. Testing of Hypotheses-Two or more Populations**

Introduction, Testing of hypothesis and confidence intervals about the difference of population means and proportions for small and large samples, Analysis of Variance and ANOVA Table. Exercises

#### **Unit 5. Testing of Hypothesis-Independence of Attributes**

Introduction, Contingency Tables, Testing of hypothesis about the Independence of attributes. Exercises.

#### **Unit 6. Regression and Correlation**

Introduction, cause and effect relationships, examples, simple linear regression, estimation of parameters and their interpretation.  $r$  and  $R_2$ . Correlation. Coefficient of linear correlation, its estimation and interpretation. Multiple regression and interpretation of its parameters. Examples

### **Books Recommended**

1. Amir, D.A. 1995. *Statistics, Concepts and Applications*, Richard D. Irwin Inc, USA
2. Bowman, B. and R.T.O'connel. 1997. *Applied Statistics Improving Business Process*, Richard D. Irwin Inc, USA

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3. Chaudhry, S.M. & Mamal, S. (1998) *Introduction to statistical theory parts I & II*, Ilmi Kutab Khana, Urdu Bazar, Lahore.
4. Walpole, R.E. (1982). *Introduction to Statistics* (4<sup>th</sup> Ed). Mac. Millan Publishing Co. New York.
5. Sprent P. 1989. *Applied Nonparametric Statistical Methods*, Chapman and Hall, London.

**ECON 210:****Agriculture Economics****3(3-0)****Course Contents****Introduction and Importance of Agriculture**

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

**Structure and Characteristics of Agriculture in LDCs**

Traditional Agriculture and Productivity. Access to non-labor resources. The Framing Environment: Natural Hazards and Economic Uncertainties. The Food problem. Farm Size and Productivity. Farm Size in Pakistan and Productivity Commercial Farms. Impact of Agricultural Reforms on Farm Size.

**Role of Agriculture in Economic Development**

A framework of Analysis. Product Contribution, Market Contribution, Factor's Contribution. Foreign Exchange Contribution. Agriculture vs. Industry Debate of Development.

**Theory of Rent and the Concept of 'Surplus'**

Introduction. Economic Rent. The Theory of Rent. Rent and Quasi-Rent The Ricardian 'Corn Rent. The Rental Market. Agricultural Surplus. Characteristics of Landownership in Underdeveloped Agriculture and Pakistan. The Theory of Share Tenancy. Some Extensions of the Share Tenancy Model.

Tenant's Status in Pakistan. Agricultural productivity in Pakistan and use of inputs.

**Agriculture in Dualistic Development Models**

Introduction. The Lewis Model. The Ranis-Fei (FR) Model. The Jorgenson Model. Kelley, Williamson, Cheetham Model.

Criticism : Dual Economy Models. Agricultural Adequacy; Mellor's Model.

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

Efficiency of Resource Utilization. Technological Change in Agriculture. Generation of new Agricultural Technology. Factor-biased Technological Change and its Distributional Consequences. Agricultural Technical Change and Agricultural Employment: Empirical Evidences. Agricultural Resources and Technical Change in LDCs: with Special Reference to Pakistan.

**Supply Response**

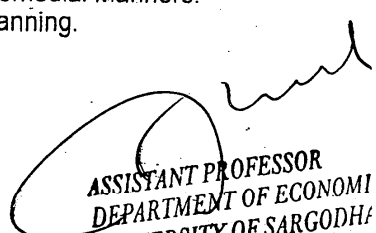
Introduction. The Cobweb Model: An Illustration. Price-Supply Response in Backward Agriculture. A simple Supply Response Model.

Supply Response in the Underdeveloped Agricultural labour Market, Specifically in Pakistan. The Concept of 'Marketed Surplus': Some Methods of Estimation.

Some Criticisms of Krishna's Method and the Alternative Approach of Behrman Perennial Crops and Marketed Surplus in Pakistan: Green Revolution in Pakistan and Responses. Present Status of Green Revolution in Pakistan: Empirical Analysis.

**Population and Food Supplies**

The Classical Model. Contra-Malthusian Model. Ecological Disequilibrium. Synthesis of Population and Food Supply Theories. Malnutrition in Developing Countries like Pakistan and Remedial Manners. Choice of Planning Strategy for Agriculture Development, Agricultural Project Planning.

  
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### Recommended Books

- Brown, Lester, The Social Impact of Green Revolution, New York, The Greogic Endowment for International Peace, 1971.
- Capstick Margret. The Economics of Agriculture, London George Allen Unwin Ltd., latest edition.
- Chaudhary M. Aslam, (1989), Agricultural Development and Public Policies, Izhar Sons, Lahore.
- Ghatak S., and Ingersent K., Agriculture and Economic Development, (Latest Edition), Harvester Press.
- Johnston, Bruce, F & Fellir Kily. Agricultural and Structural Transformation, Economic Strategies in late Developing Countries.
- Khan Mahmood-ul-Hassan. The Economics of Green Revolution in Pakistan, New York, Published 1975.
- Karamat, A., Political Economy of Rural Development in Pakistan, Lahore Vanguard Book House, 1981.
- Shafi M., (1995), Pricing of Farm Produce in Pakistan; Objectives, Practices, and Experiences. Print Associates International, Islamabad.
- Thorbake Erike. The Role of Agriculture in Economic Development, New York, Columbia University Press (1971).
- Upton Marlin, Agricultural Production and Resource Use.
- Colman D. and Young T., Principals of Agricultural Economics, Markets and Prices in Less Developed Countries, (1989), Cambridge University Press.
- Yujiro Hayami and Vernon W. Ruttan, Agricultural Development, John Hopkin University Press, London. (Latest edition).

### ECON 211:

### Agri. Policy

3(3-0)

Introduction to policy. Review of past policies and agricultural development. Study of land tenure, land reforms, irrigation policies, taxes and subsidies, input and output markets and their implications for agricultural development.

#### Books

1. Naqvi, H.M & H. Jonathan, 1998. *National Conference on Agriculture Policies and Farmers in Pakistan*, Proceeding Academy of Rural Development, Peshawar.
2. Govt. of Pakistan, 1988. *Report of the National Commission on Agriculture*, Ministry of food and Agriculture, Islamabad, Pakistan.
3. Hanink, D.M. 1994. *The International Economy*, John Wiley & Sons, Inc., New York.
4. Krugman, P.R. & M. Obstfeld, 1997. *International Economy: Theory and Policy*, Addison-Wesley Longman, Inc. New York.

### ECON 212:

### Managerial Economics

3(3-0)

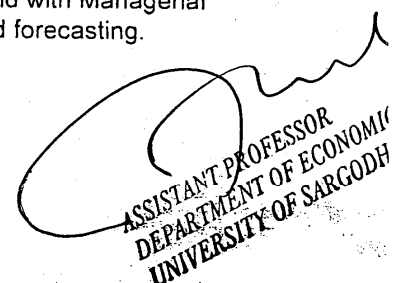
#### Course Contents

#### **Nature, Scope and Overview of Managerial Economics**

The Nature and Scope of Managerial Economics. The Managerial decision making process. Theory of the firm. Profit maximization, Cost Minimization. Economic optimization. Economic relations of variables. The Incremental concept in Economic Analysis. Demand, Supply and Equilibrium.

#### **Demand Analysis: Estimation and Forecasting**

The Basis for Demand. The Market Demand function. Demand sensitivity analysis: Elasticity, Price Elasticity of Demand with Managerial applications. Income Elasticity of Demand with Managerial applications. Application of Regression Analysis: Demand estimation. Demand forecasting.

  
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### **Production and Cost Analysis**

Production functions. Total, Marginal and Average Product. Revenue and Cost in Production. Production function estimation. Productivity Measurement. Homogenous and Homothetic Production Function. Short run and long run cost curves. Learning curves and application. Cost-value-profit analysis. Cost estimation.

### **Decision Making Under Risk and Uncertainty**

Introduction. Risk Analysis of Decision Alternatives. Adjustment for Risk in Decision Making. The Expected Value Criterion. The Standard Deviation Criterion. The Coefficient of Variation Criterion. The Certainty Equivalent Criterion. The Maximax Criterion, Maximin Criterion and Minimax regret criterion. The Decision Tree and Joint Probabilities. Optimal decision Strategy. Limit Pricing and Preventing entry.

### **Pricing Analysis and Decisions**

A Review of Market Structures and Basic Pricing Models. Perfect Competition. Monopoly. Monopolistic Competition. Oligopoly. Selected Pricing Models. Marginalist Pricing. Mark up pricing. New Product Pricing. Oligopoly Model. Contestable Markets. Pricing Strategies for Firms and Market Power. Monopolistic Competition. Price Discrimination, Monoposony and Price Product.

### **Managerial Theories and Models of the Firm**

Baumol's Theory of Sales Revenue Maximization. Marris's Model of Managerial Enterprise. Williamson's Model of Managerial Discretion Topics, Behavioral Model by Cyert and March.

### **Public Sector Production and Pricing of Goods**

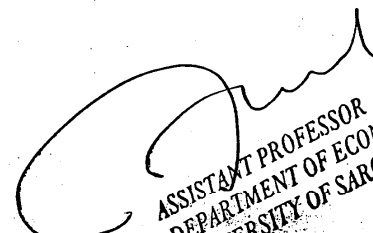
Public and Private Goods and their pricing mechanism. Decreasing cost Industry and pricing. Externalities and Market Pricing issues. Rent seeking and control. Government Policy and International Trade, tariff and pricing. Import Competitiveness and tax, International pricing Techniques /Strategies.

### **Capital Budgeting and Investment**

Pre-requisites of Capital Budgeting. Investment Criteria and Decisions. Cash flow estimation, Internal Rate of Return, Profitability-Index Criterion and other criterion. Optimal Capital Budget

### **Recommended Books**

- Douglas, E. J., Managerial Economics, Prentice Hall, (1990).
- Hirschey, M. Managerial Economics, (10<sup>th</sup> edition) U.S.A. Thomson South-Western, (2003).
- Hirschey, M. and J.L. Pappas; Fundamentals of Managerial Economics, Dryden Press, (1998).
- Kent P, and P Young., Managerial Economics: Economic Tools for Today's Decision Makers., (4<sup>th</sup> Edition) Pearson (2003).
- Keat, P., and P., Young, Managerial Economics, MacMillan, (1992).
- Koutsoyiannis, A., Modern Microeconomics, MacMillan, (1979).
- Mansfield E., (1998), Managerial Economics, Theory, Application and Cases. W. W. Norton & co.
- Michael R., Baye (2000) Managerial Economics and Business Strategy, McGraw Hills.
- Pappas, James, Brigham Eugene F and Hirschey Mark., (latest edition), Managerial Economics, Dryden Press, Chicago.
- Salvatore, D. Managerial Economics, McGraw Hill, (2001).
- Thomas, Maurice., Managerial Economics: In a Global Economy (7<sup>th</sup> Edition) New York: McGraw Hills, (2002).

  
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## 5<sup>th</sup> Semester

**ECON 301: Micro Economics**

**3(3-0)**

### **Objectives**

The course is designed for senior undergraduates. The objective is to confront them to advanced theoretical concepts and rigorous analysis with mathematical tools at hand. They have to develop the analytical skills and to enhance the capabilities to solve somewhat complicated problems. As usual, the teacher is expected to draw examples from the surrounding world for exposition.

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

### **Course Contents**

#### **The Theory of Consumption and Demand**

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

#### **The Theory of Production and Supply**

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

#### **Market Structures and Price Determination**

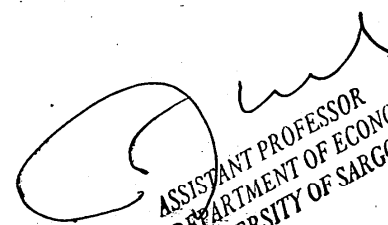
Critical appraisal of the competitive market assumptions; Efficiency of competitive market; Factors responsible for shifting of demand and supply functions overtime and impact on price; Govt. intervention in the market: price and quantity restriction and impact of taxation on price and consumer's surplus;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

#### **General Equilibrium and Welfare Economics**

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

#### **Recommended Books**

- Nicholson, Walter - Microeconomic Theory: Basic Principles and Extensions- 8<sup>th</sup> Edition (2002) or latest - Thomson & Learning Inc.
- Henderson & Quandt - Microeconomic Theory: A Mathematical Approach- 3<sup>rd</sup> Edition (1980)- McGraw Hill International

  
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- Silberberg, E. & Suen, W.- The Structure of Economics: A Mathematical Analysis- 3<sup>rd</sup> Edition (2001) – McGraw Hill International
- Layard & Walters – Microeconomic Theory- (1978) – McGraw Hill Book Company.
- Perloff, Jeffrey – Microeconomics – (1999) - Addison Wesley Longman; Inc.
- Pindyck & Rubinfeld.– Microeconomics- 6<sup>th</sup> Edition (2004) – Pearson Education Asia.

**ECON 302:****Econometrics I****3(3-0)****Objectives**

The course is designed to enable the students derive relationship between economic variables from the available data. The students should be in a position to apply statistical methods to data via simple mathematical models and to interpret the results by using economic theory. The students are encouraged to learn the use of simple computer programs and econometric packages in handling data and to understand the print outs.

The teacher should expose the students to the use of computer in solving simple econometric problems and assignments.

**Course Contents****Introduction**

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

**The Classical Linear Regression Model (CLRM)****a) The Simple Two-Variables Model**

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

**(b) The Multiple Linear Regression Model (MLRM)**

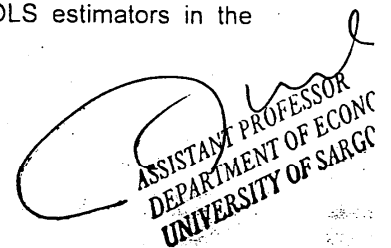
The general format of MLR model, Assumptions of model with special reference to independence of the explanatory variable, Estimation of model with 3-4 explanatory variables using the OLS procedure, Interpretation of the estimated coefficients, Computation, of elasticities The degree of freedom and adjusted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

**Deviation from the Classical Assumptions**

Assumptions of the classical model and economic reality, Relaxation of the assumptions and estimation issues, Brief introduction to the nature of problems and alternatives.

**(i) Multicollinearity**

Linear relationship between any two explanatory variables, Nature and severity of the problem, Distinction between perfect and partial Multicollinearity, Properties of OLS estimators in the presence of collinearity, Detection of the problem and remedial measures.

  
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**(ii) Heteroskedasticity**

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

**(iii) Autocorrelation**

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

**The Simultaneous Equations Models**

Why Simultaneous Equations Models: Deviation from the classical assumptions, The simultaneous equations bias, Various types and general format of simultaneous equations models, Exogenous Endogenous variables, The structural and reduced-form models, The identification problem, Formal rules for identification: The Order and Rank conditions, The Indirect Least Squares (ILS), The Instrumental Variables and Two-Stage Least Square (2SLS).

**Recommended Books**

- Gujrati, D.J. - Basic Econometrics – 4th Edition (2003)- McGraw Hill Company.
- Dougherty, Christopher – Introduction to Econometrics – 2nd edition (2002) Oxford University Press.
- Koutsoyiannis, A.- Theory of Econometrics - 2nd Edition (1977) - McMillan.
- Wonnacot & Wonnacot –Econometrics – 2nd Edition (1970)-John Wiley, New York.
- Pindyck & Rubinfeld- Econometric Models & Economic Forecasts- 3rd Edition (1992)- McGraw Hill Inc.
- Maddala, G.S. – Econometrics - (1988) - McGraw Hill Company.

**ECON 303:****Mathematical Economics I****3(3-0)****Objectives**

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

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

**Course Contents****The Nature of Mathematical Economics**

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

**Equilibrium Analysis**

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

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**Linear Models and Matrix Algebra**

Simultaneous equations models and the use of matrices, Types of matrices: Square, identity, null, idempotent, diagonal, transpose and their properties, Laws of matrix operations: addition/subtraction, scalar and vector multiplication, Conditions for non singularity of a matrix, Determinant & its properties, Minors and cofactors, Ad-joint and inverse of a matrix, Properties of inverse of a matrix, Solution of linear equations: the Gaussian method, the Cramer's rule and Inverse matrix method, Economic applications: Solution of market models, national income models, and the normal equations of the Least-Squares econometric model via matrix approach.

**Differentiation**

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

**Economic Applications of Differential Calculus**

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

**Linear Programming**

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

**Recommended Books**

- Chiang, A. C. - Fundamental Methods of Mathematical Economics – 3<sup>rd</sup> Edition (1984) - McGraw-Hill Publishing Company.
- Frank, Budnick - Applied Mathematics for Business, Economics and Social Sciences- 4<sup>th</sup> Edition (1993) or latest – McGraw Hill Publishing Company.
- Dowling E. T.- Mathematics for Economists, Schaum's Outline Series- 3<sup>rd</sup> Edition (2001) – McGraw Hill Publishing Company.
- George, Alvery et al – Essentials of Mathematics with Business Applications- 5<sup>th</sup> Edition (1995) - McGraw Hill Publishing Company.
- Weber E. Jean - Mathematical Analysis: Business and Economic Applications- (Latest Edition) -Harper and Row Publishers, New York.
- Colin, Glass – An Introduction to Mathematical Methods in Economics- (Latest Edition) - McGraw Hill Publishing Company.

**ECON 304:****Environmental Economics****3(3-0)****Course Contents****Introduction and Awareness**

What is Economics of Environment. Historical Framework for Environmental Protection. Distinction between natural resource economics and environmental economics. The Economy and the Environment. First and the second laws of thermodynamics. The fundamental balance.

**Analytical Tools: An Environment**

Supply and Demand Issue: Cost of Controlling Environment Benefit – Cost and its Estimation. Willingness to Pay. Equilibrium Principle Technology and Equi. Marginal Principles, Marginal Cost and

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Supply, Economic Efficiency and Markets. Equity and Social Efficiency. External costs and external benefits

### **The Economics of Environmental Quality**

Pollution and Impacts on Human Life, quality of life and Environment Quality. General Models of Pollution Control. Emission Reduction and Equi. Marginal Principle. Long Run Sustainability through Pricing Mechanism.

### **Valuing the Environment and Benefit Cost Analysis**

Measuring environmental benefits: Contingent valuation, the travel cost method and the hedonic approach. Benefit Cost analysis: Costs: The value of life, health, safety and risk. Pigovian Analysis, The Coase Theorem.

### **Economic Development and the Environment**

General considerations, Environmental degradation in developing economies. Economy and Environment. The Pollution Haven hypothesis. The role of developed countries.

### **Environment and Pakistan**

Emergence of Environment Issue in Pakistan, Industrial Waste, Urban Waste and Agricultural Issues Related to Pesticides use, Salinity and Water Logging. Urban Environmental Issues. Public and Private Efforts to Improve Environment Quality and Impacts. Air pollution in Pakistan. Public Policies and Awareness to Control Pollution. Environmental Policy and Strategy in Pakistan.

### **The Global Environment**

Ozone Depletion, The Economics of Global Warming. Keyoto – Protocol and Issues. International Environmental Agreements. UN and Environmental Cooperation. International trade and the Environment. Impacts of Awareness Policy.

### **Recommended Books**

- Field, B.C and M.K Field, Environmental Economics: An Introduction (3<sup>rd</sup> Edition) 2002 New York: Mc Graw Hill
- Barry C. Field, Environmental Economics, An Introduction, McGraw Hill (Latest Edition).
- Chapman, D. Environmental Economics : Theory Application and Policy, Latest eds. Massachusetts: Addison- Wesley
- Hussen A. (2003), Principles of Environmental Economics, Routledge Publishers.
- Baker Steve, Environmental Economics, (2003) Dominant Publisher and Distributors, New Delhi.

### **ECON 305: Agri-Business Marketing and Analysis 3(3-0)**

A survey of marketing systems and practices in the food and fibre industries. Marketing of both farm inputs and farm outputs are covered. Unique features of agribusiness marketing systems and their management implications. Core marketing theory including marketing concepts, the marketing environment, consumer behaviour, the marketing mix and management of product, price, promotion and distribution. Analysis of agribusiness firm decisions in the ecological, economic, social and political environments. Special emphasis on ethical issues surrounding food production, distribution and consumption.

### **Books Recommended**

1. Dalrymple, J. D. and L. J. Parsons.1996. *Market Management, Strategy and Cases*. John Wiley and Sons, Singapore.
2. Schaffner, D., J. Schroder, W. R. Earle. 1998. *Food marketing: An International Perspective*. McGraw-Hill, New York.
3. Downey, W. D. and S. P. Erickson. 1987. *Agribusiness Management*. McGraw-Hill, New York.
4. Anton, H. 1988. *Mathematics with Applications in Management. Natural and Social Sciences*. McGraw Hill New York.
5. Echer, J.G. and K. M. Schmid. 1988. *Operation Research: An Introduction*. 3<sup>rd</sup> Edition, John Wiley and Sons, New York.

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**ECON 306:****Resource Economics****3(3-0)****Objectives**

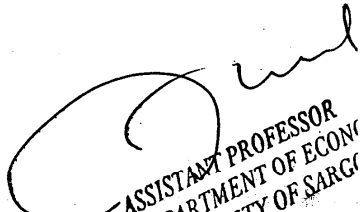
This course aims to provide the students a broad introduction to the economics of natural resources and the environment. It intends to develop a systematic understanding of the economic rationale behind the optimal use of natural resources, Pricing of market and non market resources, application of environmental policy instruments, economic valuation principles.

**Course Contents**

Economics and environment. Resource scarcity, prices, demand and supply of natural resources. Market equilibrium, economic efficiency, inter-temporal efficiency, property rights. The economics of pollution, natural resource exploitation. Optimal utilization of renewable and non-renewable natural resources. The economic concept of value and measurement of environmental and natural resource benefits using non-market valuation methods. Economic approaches to conservation of natural resources. Policy instruments to address resource allocation and environmental problems. Benefit cost analysis.

**Recommended Books**

- Randall, A. 1987. 'Resource Economics' An Economic Approach to Natural Resource and environmental Policy. John Wiley and sons, Inc. New York .
- Compathy, R. S. and R. S. Ganapatty, 1990. Natural Resource Management' Mohan Primlani for Oxford and IBH Publishing Co. New Delhi.
- Jon M Conrad. Resource Economics. Cornell university , New York
- CC - Conrad, Jon M., and Colin W. Clark, Natural Resource Economics: Notes and Problems, Cambridge: Cambridge University Press, 1987.
- HNREE-III - Kneese, Allen V. and James L. Sweeney (eds.), Handbook of Natural Resource and Energy Economics, Volume II, Amsterdam: North-Holland, 1993.

  
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## 6<sup>th</sup> Semester

**ECON 307: Macro Economics 3(3-0)**

### Objectives

The course is designed for senior level undergraduate students. The objective is to enhance their analytical skills and to clarify further their macroeconomic concepts with quantitative tools at hand. They must have a strong theoretical foundation so as to understand the real problems of the economy with particular emphasis on inflation, unemployment, instability, deficit and debt etc. to which the developing countries are confronted at present.

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

### Course Contents

#### Macroeconomics: The Classical Framework

Ingredients of the Classical model: The Says law of markets, The Quantity theory of money, The Marginal Productivity theory, Equilibrium in the goods and money markets, A critical appraisal of the Classical model, Dichotomy in the economy

#### The Demand Management Economy

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

#### The Supply Side Economics

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

#### The Open Economy Macroeconomics


Balance of Payments: Current and Capital account, The IS-LM-FB model due to Mundell and Fleming, The case of a small open economy with special reference to developing economies, The relative effectiveness of Fiscal and Monetary policies under the Fixed and Floating exchange rate regimes, The Managed exchange rates system, Determinants of the Exchange Rates, Devaluation and its impacts for developing countries, Perfect and imperfect capital mobility, Problems of stabilization in a global framework.

#### Macroeconomic Policy Debate

Policy Actions: Active or Passive, Ignorance, Expectations and the Lucas Critique, Conduct of Policy: Formula/Rule vs. Discretion, Distrust of Policy makers and Political Process, Macroeconomics Policy: the Fiscal, Monetary and Commercial policies, Policy formulation and implementation in a world of uncertainty, Seignorage and Inflation: Monetarists vs. Activists, the short-run and long-run analysis of the Phillips Curve, The expectation-augmented Phillips Curve, The Perfect Foresight and adjustment.

#### Growth and Business Cycles

The accumulation of capital, Acceleration principle and the concept of steady state growth path, The steady state conditions, The basic Neoclassical (Solow) growth model, Golden rule for consumption and investment (capital accumulation), The role of technical progress in growth, Introduction to the

  
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theory of Real Business Cycles: Interpretation, Labor market, Technology shocks, Household Behaviour, the persistence of output Fluctuations, Limitations of the Model.

### Recommended Books:

- Branson, William – Macroeconomics: Theory and Policy – 3<sup>rd</sup> Edition (1989) or latest Harper and Row, New York.
- Froyen, Richard – Macroeconomics: Theories and Policies – 7<sup>th</sup> Edition (2002) Prentice Hall
- Gupta, G.S. - Macroeconomics: Theory and Applications- 2<sup>nd</sup> Edition (2004) Tata McGraw Hill Publishing Company, New Delhi
- Scarth, William, M – Macroeconomics: An Introduction to Advanced methods- 2<sup>nd</sup> Edition (1996)- Dryden Press: Harcourt Brace & Company.
- Romer, David - Advanced Macroeconomics -(2001)- McGraw Hills, New York
- Mankiw, Gregory- Macroeconomics- 5<sup>th</sup> Edition (2003)- Worth Publisher, New York.

## ECON 308: Econometrics II 3(3-0)

### Objectives

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

### Course Contents

#### Overview of the Classical Regression Model

The multiple regression (K-variable) model in matrix format, Assumptions of the model, The Least-Squares estimation procedure in matrix notation, Properties of the OLS estimators, Interpretation of the Beta coefficients ( $\beta_1, \beta_2, \dots, \beta_k$ ), Hypothesis testing using matrix approach, Forecasting in OLS model, Time as an explanatory variable, Regression on Dummy variables, Dummy variable trap, Chow test, Specification bias and Errors in variables, Estimation with endogenous lagged variables, Restricted Least Squares,

#### The Generalized Least-Squares Model

Deviation from the assumptions of the classical regression model, The problem of heteroskedasticity, The GLS model in matrix format, Detection of the problem and consistent estimators, The problem of autocorrelation: Autoregressive and Moving Average processes, The Durbin-Watson statistics, Alternative estimation techniques.

#### The Maximum Likelihood Estimators

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

#### Time Series Analysis

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

### Recommended Books

- Johnston, J & John Dinardo- Econometric Methods – 4<sup>th</sup> Edition (1997) The McGraw Hill Companies, Inc, Singapore.
- Intrilligator, M - Econometric Models: Techniques and Applications- N. J. Prentice Hall, (Latest).

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- Judge, George G. et al - The Theory and Practice of Econometrics- (1988)
- John Willey and Sons.
- Maddala, G.S. & Kim –Unit Roots, Co-integration and Structural Change -(1998)
- Cambridge University Press.
- Johnston, J.- Econometric Methods – 3<sup>rd</sup> Edition (1991)-McGraw Hill Company
- Kamenta, J. - Elements of Econometrics - 2<sup>nd</sup> Edition. (1971) – Macmillan

**ECON 309: Mathematical Economics II 3(3-0)**

**Objectives**

Objectives: The course is designed for senior undergraduates more interested in quantitative economics. The objective is to confront the students to advanced mathematical techniques so as to enable them handle economic models, interpret the results and solve complex problems.

The students may be given assignments and exercises from the texts and weekly or fortnight class tests and quizzes including MCQ's.

**Course Contents**

**Complex Number and Circular Functions**

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

**Integral Calculus**

Comparative Dynamics and Intégration, The Nature of Indefinite Integrals, Rules of Integrations and Operation: Substitution Rule, Integration by parts. Definite integrals and their properties, Definite Integrals and Area under a curve, Improper integrals, Economic Applications of Integrals: Finding total functions from marginal functions, Investment & capital formation, Present value of cash flow, P.V. of a Perpetual Flow, The Domar growth model.

**Differential Equations**

**(i) First Order Linear Differential Equations**

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

**(ii) Higher Order Differential Equations**

Solution and Verification of second order linear differential equations with constant coefficients and constant terms, Real and imaginary roots, Distinct, repeated roots and complex roots, Dynamic stability of equilibrium, Economic applications: Market models with price expectations. The Interaction of inflation and unemployment in continuous time, Higher order differential equations, Convergence and the Routh theorem, Solution of simultaneous difference equations.

**Difference Equations**

**(i) First Order Difference Equations**

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

**(ii) Higher Order Difference Equations**

Solution and verification of second-order linear difference equations with constant coefficients and constant terms, Real and imaginary roots, Distinct, repeated and complex roots, The convergence and divergence of the time paths. Economic applications: Models of business

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cycles, The Multiplier-Acceleration interaction model, inflation-unemployment model in discrete time, Higher order difference equations and their solutions, Convergence and the Schur's theorem, Solution of simultaneous difference equations.

#### **Non-Linear Programming**

The nature of non-linear programming, Non-linearities in Economics, Kuhn-Tucker conditions and their interpretation, The Kuhn-Tucker Sufficiency theorem: Concave programming, The Arrow-Enthoven Sufficiency theorem: Quasi-concave programming, Economic applications: Utility maximization, Least-cost combination,

#### **Recommended Books**

- Chiang A.C and Kevin Wainwright - Fundamental Methods of Mathematical Economics- 4th Edition (2005) McGraw Hill Publishing Company.
- Gandolfo, G – Economic Dynamics: Methods and Models – (1983 or Latest Edition)
- North Holland Publishing Company
- Dowling Edward T. - Mathematics for Economics: Schaum Series – (1981).
- Weber E. Jean, Mathematical Analysis, Business and Economic Application (latest edition), Harper and Row Publishers, Netherlands.
- Hoy M., Livermois J, Rees R, Stengos T. - Mathematic for Economics – (1996) - Addison & Wesley Publishers.
- Shone, R – Economic Dynamics: Phase Diagrams and their Economic Applications- (1997)- Cambridge University Press.

### **ECON 310: General Equilibrium and Welfare Economics 3(3-0)**

#### **Course Contents**

The nature of general equilibrium analysis, General Equilibrium Theory: Multi market equilibrium in a competitive setting; Walras Law; Existence of equilibrium; Stability of equilibrium; Money in a general equilibrium setting. Technical and allocative efficiency and case of exchange economy. Linear programming technique to general equilibrium theory (Activity Analysis). The Von-Neuma Model of an expanding economy. The input-out Model. Pareto principle, optional, production and resource allocation and efficiency of Perfect Competition. Measurement of Changes in Welfare: Consumer Surplus, Compensation-Principle. The Theory of Social-Choice: Social welfare function, Arrow's Impossibility Theorem, Marginal cost pricing, Joint Products, Externalities, Income distribution and compensation principles. Theory of second best and its application in Public Sector and international trade.

#### **Recommended Books**

- Mas-Colell, Whinston and Green, Microeconomics Theory, Oxford University Preses, 1995. Other Reference Books for general equilibrium.
- Arrow and Hahn, General Competitive Analysis, San Francisco, Holden-Day 1971.
- Jehle, G.A., & P.J. Reny, Advanced Microeconomics, Theory, Addison Wesley, 2001 (2<sup>nd</sup> ed.)
- Varian, H., Microeconomics Analysis, Norton 1992 (3<sup>rd</sup> ed)

### **ECON 311: Monetary Economics 3(3-0)**

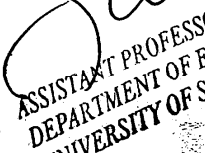
#### **Course Contents**

##### **Introduction and Development of Monetary Mechanism**

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

##### **Role of Money in the Economy**

Debate on neutrality and non-neutrality of Money. Classical Dichotomy and Keynesian Integration of Nominal and Real Sectors. Role of Money in the IS-LM Framework. Money in Aggregate Demand & Aggregate Supply Analysis. Keynesian Vs. Monetarist views of Equilibrium Output, Employment and Prices.

  
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### **Demand for Money**

Quantity Theory of Money. Transaction Theories of Demand for Money. Portfolio Theories of Demand for Money. Baumol – Tobin Model of Cash Management. Friedman's Restatement of Quantity Theory of Money. Empirical Evidence on the Demand for Money.

### **The Money Supply Process**

Monetary Base, Keynesian Liquidity Preference Framework, Friedman's Modern Quantity Theory of Money. Multiple Deposit Creation: Introducing the Money Supply Process. Determinants of the Money Supply: Exogenous and Endogenous. Understanding Movements in the Monetary Base, Money Multiplier. Velocity of Money and its variability. Explaining Depositor and Bank Behaviour: the Complete Money Supply Model. Regressive Expectation Model.

### **The Conduct of Monetary Policy: Central Bank**

Structure and Functions of Central Bank. Independence of Central Bank and its role in Economic Growth. Tool of Central Bank for Money Control. Monetary Base. The Conduct of Monetary Policy: Goals and Targets. Tools of Monetary Policy: Three Major Tools of Monetary Policy. Required Reserve Ratio, Discount Window Loans and Open Market Operation. Advantages and Disadvantages and Impact Analysis of each Policy Tool. Central Bank as a lender of last Resort. Financial Intermediaries. Monetization of Public Debt. Ineffectiveness of Stabilization Policies. Targeting interest rate and inflation.

### **Money & Interest Rates**

Determinants of interest rates. Kinds of Interest Rates. The Behavior of Interest Rates. Understanding & Measuring the Interest Rates. Real & Nominal Interest Rates. Theories of Interest Rate Determination. The Risk and Term Structure of Interest Rates. The Distinction Between Interest Rates and Returns. Maturity & Volatility of Bond Returns. Portfolio Choice: the Theory of Asset Demand.

### **Money and Inflation**

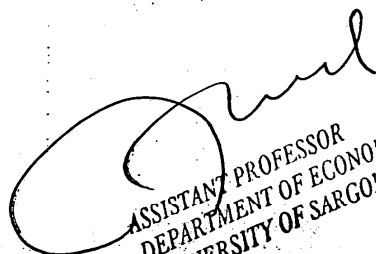
What is Inflation & Causes of Inflation? Demand – pull Inflation, Cost – push Inflation, Stagflation & Hyperinflation. Inflation as a Monetary Phenomenon. The Philips Curve and Accelerating Inflation. Inflation in Pakistan: Sources and Managing Policies. Sources of Inflation in Pakistan: Spiracle Evidences. Policies to Combat Inflation in Pakistan.

### **Monetary Policy in International Framework**

Money Demand and Empirical Evidences. Money in Growth Models. Inflationary Spiral. Current Issues in Monetary and Financial Sector Reforms. Conduct of Monetary Policy in Fixed and Flexible Exchange Rates. Perfect Mobility of Capital and Money Control, Effectiveness of Policy. Impact of Reserves on B.O.P and Exchange Rates. Targeting exchange rate. Managed Exchange Rate System and Monetary Policy. Targeting Inflation. Exchange Rate and Balance of Payment.

### **Recommended Books**

- Bennett T. McCallum, (1989), Monetary Economics, Theory and Policy, McMillan.
- Fredric S. Mishkin, (1995), Financial Markets and Money, Harper & Row Publishers.
- Laider, David E.W (1996), The Demand for Money: Theories, Evidence and Problems (Fourth edition), Harper & Row, Publishers, New York.
- Miller, R. L. and David VanHose, (2001), Money, Banking & Financial Markets. South Western, Singapore.
- Mishkin, Frederic S., (2001), The Economics of Money, Banking and Financial Markets. (Sixth edition). Addison Wesley, New York.
- Vanish K., Monetary Theory, (2000), Vikas Publishing House, Delhi.
- Patinkin Don, Money, Interest and Prices, Harper and Row Publishers, (Latest Edition).

  
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## 7<sup>th</sup> Semester

### ECON 401: International Trade Theory 3(3-0)

#### Objectives

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

#### Course Contents

##### Importance and Bases of Trade

Why Study International Economics? The Changing World and Interdependence: Basis of Trade, Gains from Trade. Absolute Advantage, Comparative Advantage, Overview of Comparative Advantage and Pattern of Trade. Offer Curves and Free Trade Equilibrium. Disagreements on Free Trade: Overview of Emergency of International Trade Issues. The Elasticity of Exports Demand and Balance of Payment. Substitution and Income Effects, Impacts of Rise in Exports Demand.

##### Growth and Trade

International Trade and Shift in Production Function, Immerizing Growth, Output Growth and Terms of Trade (T.O.T) / Deterioration: Uniform Growth at given T.O.T. The Transfer Problem: Marshall Plan and Transfers, Transfer of Resources: Neutral Case.

##### Technology and Factor Endowment

Ricardian Trade Model, World Production and Gains. Comparative Cost and Trade Pattern. National and World Gains from Trade. International Wage differentials and Productivity. Technical Progress and International Gains. WTO and Gains from Technical Progress: Impacts on Prices. Equilibrium Production and Consumption: Non-traded and Tradable, Costs, Marginal Physical Product and Production Possibilities. Production Possibilities with Diminishing Returns, Increasing Opportunity Cost. Free Trade and Income Distribution, Relative Demand, Supply and Pattern of Trade. Dutch Disease and its application.

##### Factor Endowment and Heckscher – Ohlin Theory

Output and Factors Rewards in 2\*2 Model. Factor Intensity Comparison. Heckscher- Ohlin (H.O) Model, The Role of Demand, Factor's Prices and Commodity Prices, Factor Price Equalization, and Factor Intensity Reversal. Newly Industrializing Countries (NIC's) and Footloose Production Process. NIC's and H.O Theorem. The Product Cycle, Critical Analysis of Traditional Trade Theories. Rybescky Theorem and its critical review.

##### Markets, Cartels and International Trade


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

##### Tariff, Quota, Trade Policies and WTO

Tariff and Small Country: Effects of Tariff, Price and Demand for Imports, Welfare impacts. Impacts of Tariff on Government Revenue, T.O.T Production and Welfare. Impact of Tariff on Domestic and World Welfare. The Optimal Tariff. Tariff and Distribution of Income. Brief Introduction of Tariff and WTO, Laws, Tariff and Second Best Choice, Subsidies and Quota, Voluntary-Quota, Growth with Protection vs. Free Trade Gains and WTO. Managed Trade, Quantitative Restrictions, Voluntary Export Restrictions and Their Impacts. Trade Diversion and Preferential Arrangements. WTO: Injury, Anti-dumping Duties, Tariff and B.O.P Support. Success and Failure of WTO. Agenda. WTO Rules: Sanitary, Phytosanitary, Dumping, Anti-Dumping etc Rules and Emerging New Issues and Their Impacts.

##### Major Contemporary International Economic Issues:

WTO: GATT and Emergency of WTO. Why necessary to Join WTO? WTO: Major Trade Rules and Their Expected Impacts on Trade, B.O.P Deficit. WTO and Fair Trade / Free Trade. Free Trade will it be? Issue of "Are Free Trade Gains more than Restricted Trade"? Emerging Regional Trading,

  
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Blocks, Special Preference and their Impacts. Issues relating to the Contributions of International Financial Institutions and Their Evaluations. Is there need to Reform International Institutions? Monetary Integration and Their Impacts. Terms of Trade Issue.

### Recommended Books

- Caves Richard, E., and Jones Ronald W., World Trade and Payments: An Introduction, Latest Editions. Little, Brown and Company, Boston, Toront. Latest edition..
- Chacholiades, Miltiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London, Latest edition.
- Donomick Sal Vatore B., International Economics (Latest Edition), Prentice Hal, Latest edition.
- Grubel Herbert C., International Economics. (Latest Edition) Richard D. Irwin Inc., Honewood, Illinois.
- Peter Holinder & Thomas A., Pugel., International Economics. Latest edition.
- Sodersten B. and Geoffry Read., (1994). International Economics, MacMillan Press Ltd. Latest edition.
- The Global Competitiveness, Report 1999, World Economic Forum, Oxford University Press, Oxford, New York.
- World Bank. World Development Report, 1986. Oxford University Press.
- Baldwin Robert L. and Richardson David J., (1986). International Trade and Finance, Little Brown and Company, Boston, Toronto.
- Moran Theodore H., (1985). Multinational Corporations: The Political Economy of Foreign Direct Investment. Lexington Books. Toronto, Massachusetts.
- Krugman and Obstfeld, International Economics: Theory and Policy, Addison Willey (1998).

## **ECON 402:                      Research Methodology                      3(3-0)**

### Course Contents

Importance of Research Methodologies. Research techniques in social sciences and their limitations. Theory and basis of research. Empirical and theoretical research. Stages of research process. Identification of problem/issue, data, theory and estimation and related problems. Thinking, Field Research Designs; the process of field research, Exploratory Research, Casual Inference. Methods of communication in survey. Vision survey and communication techniques. Art of asking questions and getting quality information. Preparation of Research Proposal Questionnaire, Sample Design; the Nature of Sampling, Measurement and Scaling; Measurement, Measurement Scales, the Characteristics of Sound Measurement, the Development of Measurement Tools, Scaling, the Nature of Scaling; Response Methods, Scale Construction. Data Collection Methods, Survey Instruments and Field Procedures; Survey Instrument Designs, the Survey Situations, the Instrument Development Process, Questionnaire Development, Field Procedures, Personal Interviewing, Telephone Interviewing, Interviewing by mail, observations. Data collection, Observation, Experimentation and Simulations; Experimentation and Simulation. Choice of Research Technique, Experimental Research Design, Simulation, Observation, Observation Designs. Use of Secondary Data; the Nature of Secondary Data Sources, the Use of Secondary Data, Types of Secondary Data Sources, Statistical Sources, Data Research Procedures, Evaluating Secondary Data. Vision Survey: Interpretation of Replies. Data Presentation and Analysis: Elements of Analysis, Data Preparation, Special Data Problem, Tabulation, Data Presentation, and Data Analysis. Report Writing; the Questions and analysis of Research Proposal. Organization of Research Paper. How to format and Write country Research Report. Executive summary and abstract of a report. Conclusion and its basis. Evaluation of Research Work. The Research Report, Research Report Format, Writing and editing of research Report.

### Recommended Books

- Birchenhall C. and Grout P., (latest edition), Mathematics for Modern Economics, Herifaa Publishers, New Delhi.
- Holt, Rinehart and Winston, Holt-Sounders Japan Ltd. Tokyo (Latest edition).
- Johnson, Glenew Research Methodology for Economists: Philosophy and Practice, McMillan

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- Publishing Co. (Latest edition).
- Kidder Louise H., Research Methods in Social Relations.
  - Lambert, P., (1985) Advanced Mathematics for Economists. Static and Dynamic Optimization, Basil Black Well.
  - Neuman W. Lawrence, (1997) Social Research Methods, Qualitative and Quantitative Approaches, Allyn and Bacon; Boston.
  - Sckaran Business Research Methods
  - Uma, Sekarn, (1992), Research Methods for Business. A Skill Building Approach, John Willey & Sons, Inc.
  - Young Pauline V., (latest edition), Scientific Social Survey and Research, Prentice Hall Inc.
  - Zikmund William; G., (1994), Business Research Methods, The drydem Press.

**ECON 403: Public Finance****3(3-0)****Course Contents****Introduction and Role of Public Sector**

The Economic Functions and Public Goods: Allocation of Resources, Redistribution of Income and Wealth and Stabilization. Pricing Public Goods.

**The Theory of Public Goods**

Fiscal Principles and Concepts: The Traditional Principle of Tax Neutrality is Expanded Principle of Fiscal Neutrality. Exhaustive Vs. Non-Exhaustive Public Expenditures, Income Elasticity of Government Expenditures, Tax Vs. Non-tax Revenues; Microeconomic Vs. Macroeconomic Regulatory Taxes, Tax Base, Tax Rate Relationship; Progressive, Regressive and Proportional Taxes, Marginal Propensity to Tax and Marginal Vs. Average Tax Rates; Income Elasticity of a Tax Integral Fiscal Non-Neutrality. Tax Efforts and Tax Collection Performance in Pakistan.

**Public Revenue and Taxes**

The Economic Case for the Public Sector to Allocate Resources: Market Imperfections, Decreasing Costs of Production, Public Goods and Externalities. Pricing Decreasing Cost Industry.

**The Theory of Public Goods**

Public and Private Goods, Pure Public Goods, Should Public Sector be Produced Vs. Private Goods? Semi Public Goods, Merit Goods, Free Rider Problem, Externalities and Public Policy.

**Distributional Equity in Taxation**

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

**Tax Structure of Pakistan**

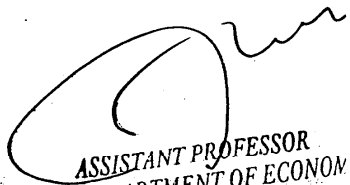
Various Kinds of Taxes and their Objectives / Performance in Pakistan. Income and Sales Taxes, Excise and Custom Duties, Export and Import Taxes, Tax Reforms in Pakistan and their Impacts. General Equilibrium Vs. Partial Equilibrium: Tax Incidence Analysis. Determinants of Tax Shifting under Partial Equilibrium Conditions. Impacts of Tax Shifting on Price.

**Fiscal Policy: Public Expenditure and Budget**

Theories of Public Expenditures, Wagner's Law, Efforts of Public Expenditures. Components of Public Expenditures in Pakistan, Sources and Direction of the Growth of Public Expenditures. Kinds of Budget, Surplus, Deficit and Balanced: Preparation of Budget Cycle in Pakistan, Development and Non-Development Budget and its Patterns. Zero Based Budget, Planning, Programming Budgeting System.

**Fiscal Relations**

Fiscal and Economic Aspects of Federalism, Federal – Provincial Fiscal Co-ordination, Collection of Revenue and Provincial Share and its Distribution Criteria. Deficit Financing and its Impacts.

  
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### Recommended Books

- Bernard P. Herber, (1999), Modern Public Finance.
- Chellieah R.J. (Latest eds.), Fiscal Policy in Less Developed countries.
- David N. Hyman, (1996), Public Finance, A Contemporary Application of ---, Harcourt Brace College Publishers.
- Govt. of Pakistan, Economic Survey, Yearly Publication, Ministry of Finance, Economic Advisory Wing, Islamabad.
- Rosen and Harvey S., (1999), Public Finance, McGraw Hill.
- Musgrave R.A. and B.P., Musgrave (Latest Eds.), Public Finance in Theory and Practice, McGraw Hill.
- Stiglitz E., (2000), Economics of The Public Sector, W. W. Norton & Co.

## **ECON 404: History of Economics Thoughts 3(3-0)**

### course Contents

#### Introduction

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

#### Mercanti lists and the Physiocrates

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

#### Classical School

The Contributions of Classical School, Adam Smith; Malthus and Ricardo etc., The Labor Theory of Value. Bullin Debate. Ricardo's Monetary Thought. Evolutionists, Ricardo and Reformers of 18<sup>th</sup> Century. The Theory of Rent. Profit Concepts of Colonization. Economic

#### Socialism

Socialism before Marx. English Socialists. Anarchism. Karl Marx's Contributions. The Class Struggle. Criticism on Marx. Challenges to Capitalism. German Historical School, Weber's contributions. The Marginalist School, Neo-Classical Economics. Jeons Inference. The concept of Welfare State. Chamberlin and Robinson. Australian School of thought. Veber and Galberith's Contribution.

#### Keynesian and Post Keynesian School

The Keynesian and Post Keynesian School, The Great Depression: Economic Policies and Capitalist Instability Between the World Wars. The 20<sup>th</sup> Century Paradigms. The Growth of International Economy. The Rise and fall of Post World War II. The American economic history and Lessons.

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

The Crisis of the 1970's and International Responses. Failure of Trickle down effects. Rational Expectation Revolution. Basic Needs Approach and welfare. Emergence Famine and Poverty.

- ii) Modern Economic Thought. Comparison of Post Keynesian and Monetarist Thoughts. Supply side economics. Globalization, Liberalization and New Weave of Economic Growth and Welfare. New Growth Theory. Convergence and Divergence Debate. Future of Economics, Quality and International Trade and emergence of markets, New Regionalism, New directions of research. Environment and sustainable growth.

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### Recommended Books

- A History of Economic Ideas, (1959), Robert Lekachman, McGraw Hill Company.
- Economic Theory in Retrospect, Blaug, (1978), Cambridge University Press.
- Frank A. G., (1998), Global Economy in the Asian Age, Univ., of California Press.
- Henry John D., The Future of Economics, (1992), Black Wall Publishers.
- Marx k., and Engles F., The Communist Manifesto, Peoples Publishing House, Moscow, latest edition.
- Rima Ingrid, Development of Economic Analysis, Routledge Publishers (Latest ed.).
- Spechler, Martin C., (1990), Perspective in Economic Thought, McGraw Hills.
- The Main Current in Modern Economics (latest edition), The Free Press of Glancer.
- Theories of Value and Distribution (latest Edition), Dobb M., Cambridge Univ. Press, Latest edition.
- Twenty Contemporary Economist ed. (1981). Schach and Locksley, MacMillan Press.

### ECON 405: Project Appraisal and Investment Analysis 3(3-0)

#### Course Contents

##### Introduction

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

##### Identify Project Benefits and Costs

Objectives of Costs and Benefits, The Incremental / Net Benefits and "With" and "Without" Comparisons. Categories of Costs and Benefits.

##### Pricing Project Costs and Benefits

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

##### Comparing Project Costs and Benefits (Measuring of a Project Worth)

Undiscounted measures of project worth, Discounted measures of NPW, IRR, BCR, Net benefit – Investment Ratio, Comparative assessment of discounted measures. Social vs. Economic benefits and selection of projects.

##### Applying Discounted Measures of Project Worth

Sensitivity analysis, Switching value, Choice among mutually exclusive alternatives, Domestic resource cost of foreign exchange earning / saving.

##### Cost Effectiveness Analysis

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

##### Financial (Investment) Analysis

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

##### Recommended Book

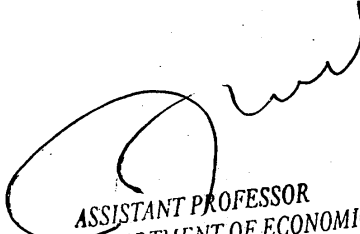
- Hughes, A., & D.J. Storey: "Finance and The Small Firm" (Ed) Routledge, London, (Latest).
- Bruno Solmik, International Investment, Addison Wesley, (Latest).
- Burno Solnik: "International Investments" 3<sup>rd</sup> Ed. Addison, Wesley publishing Co. (Latest)

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- Donald, E., Fischer, Arnold, J., Security Analysis and Portfolio Management. Prentice Hall, Delhi, (Latest).
- Edwin J., Elton and Martin J. Gooper, Modern Portfolio Theory and Investment Analysis, John Wiley and Sons (Latest).
- Gittinger J. Price, "Economic Analysis of Agricultural Projects", The Johns Hopkins University Press, London, Dec. (Latest).
- Hughes and Storey D.J., Finance and Small Firms, Routledge, London (Latest).
- Hussain, Ch. M: "Project Appraisal, Monitoring and Evaluation Process with Special Reference to Pakistan" Royal Book Co. Karachi, (Latest).
- Punjab P&D Board, "Planning Manual" Lahore, (Latest).
- United Nations: "Guide to Practical Project Appraisal – Social Benefit – Cost Analysis in Developing Countries." Oxford & IBH publishing Co. New Delhi. (Latest).
- United Nations: "Manual for Evaluation of Industrial Projects" Oxford & IBH Publishing Co. New Delhi. (Latest).
- William F. Sharpe & Gordon J., "Investments" 5<sup>th</sup> Ed., Prentice Hall, (Latest).
- Zvi Bodie, Alex Kane, Alan K., Essentials of Investment, McGraw Hill, (Latest).

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## 8<sup>th</sup> Semester

### ECON 406: Applied Economics 3(3-0)

#### **Course Contents**

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

Operating System, Performance Management, Desktop Management, Printer Management, Internet Explorer, E-mail. MS-Word, using Advanced Formatting Features, Sharing data with Word, Word Macros, Composing Models and Mathematical Equations.

##### **PowerPoint and MS-Access (XP)**

Database Concepts, File Linkages, Data Retrieval, Data Editing / Updating. Data Transferring.

##### **SPSS and E-View**

Menu, Tool Bars, File Linkages, Dialog Boxes. Data Analysis, Analysis of Variance: Simple and Multiple Regression Analysis, Formatting Reports, Creation and Modification of Chart, Line Area and Pie Chart. Output Navigator Printing, Data Editor Printing, Command Syntax Printing. Use of E-view for Model Estimation.

##### **Estimation of Production Function**

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

##### **Computer Applications: Demand – Supply & Equilibrium**

Estimation of Demand and Supply using E-View / SPSS. Aggregate Demand – Aggregate Supply and Equilibrium.

##### **Model Building and Estimation**

Building Simple Econometric Models and Estimation. Single Equation Models, Multiple / Simultaneous Equation Model. Interpretation of Computer Output.

##### **Project Appraisal and Computer Application**

Use of Computer Programming (Softwares), E-View etc. for Cost-Benefit Analysis, Estimation of Present Values, Estimation of Economic and Social Benefits. Project Appraisal Using E-View etc. Estimation of Cost Functions and Decision Making.

##### **Econometric Analysis and Computer Applications**

Regression Functions. Estimation with Qualitative Variables Confidence Interval and Hypothesis Testing. Estimation and Improving Model Estimates: Autocorrelation, Estimation of Simultaneous Equations. Estimation of VAR and ARIMA Models.

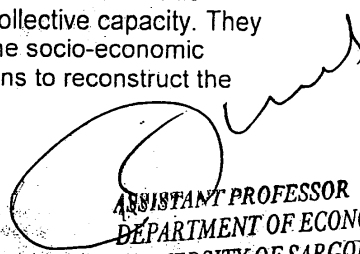
##### **Recommended Books**

- E-View Manual, (Learning help available with package (software)).
- Gimi, Carter and Annette, Marquis, with Karl Browning, Mastering Microsoft Office XP Premium, Selection B.P.B., Publishers, New Dehli, (2001).
- Robertson, D.F., Computer Applications and Programming, Har Brace Jovanovich Inc. USA (latest edition).
- SPSS-Manual

### ECON 407: Islamic Economics 3(3-0)

#### **Objectives**

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

  
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system in vogue according to Islamic guidelines so as to achieve greater stability, equity in distribution and reduction in poverty as the primary goals of all developing nations.

### Course Contents

#### Introduction

Islamic Economics: Definition, Nature, and Importance, Islamic Economics Versus Secular Economics, The foundations of Islamic Economics, Brief Introduction of the Basic Values of Islam; Piety (Taqva), The lawful and unlawful (Halal and Haram), Trusteeship, Accountability, Justice, Benevolence, Equality, Brotherhood and Cooperation, Determinants of Economic Behaviour and Policies in Islam.

#### Islamic Economic Thought

Contribution of prominent scholars towards development of Islamic Economic Thought (Imam Abu Yousuf, Imam Abu Ubaid Al-Qasim, Ibne-Khuldoon, Imam Ibn-e-Taimiyah, Shah Waliullah Dehlawi, Maulana Maududi, Baqar-al-Sadar etc).

#### Microeconomics in Islamic Framework

##### a. Consumer's Behaviour

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

##### b. Behaviour of the Firm

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

##### c. Market structure

The concept of fair trade, Resource allocation under Islamic environment, Emphasis on competition, The case of monopolies and cartels in an Islamic system, Behaviour of the retailers, stock holders and whole-sellers, Types of transactions (Bai Fasid, Bai Salam, Bai Muajjal, Murabaha), Principles of financial contracts, Determination of price and the rate of Normal profit, Meeting of losses, Price mechanism and role of the State in market regulation.

#### Macroeconomics in Islamic Framework

##### a. Some Basic Macroeconomic Concepts

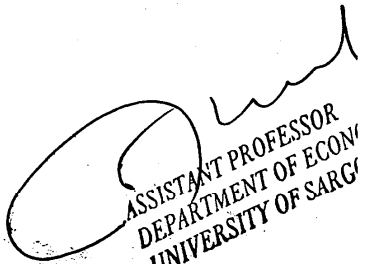
Consumption, saving and investment functions, Determinants of consumption and Investment functions in Islamic environment, Concept of helping others, The parameters of Public spending in Islamic framework, International trade relations, Inflation and unemployment, Stabilization policies in Islamic framework.

##### b. Money and Banking

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

##### c. Public Finance and Fiscal Policy

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

  
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### Islamic Economic System

Salient features of an Islamic Economic System: Objectives, Economic Freedom, Equity and Efficiency, Social and distributive justice, The relative importance of Capital and Labour, Private ownership and property rights, Family system and the law of inheritance, The institution of Zakah and Bait-ul-Mal, Wider circulation of wealth, Fulfillment of basic needs, The institution of Interest and its inconsistency, Rationale for prohibition of interest, Role of the State in an Islamic system, Protection of faith and Islamic values, Economic and social welfare, Alleviation of poverty and reducing of inequalities, Comparison of Islamic economic system with Capitalism and Socialism.

### Islamization Process in Pakistan

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

### Recommended Books

- Ahmed, Khurshid – Studies in Islamic Economics- (1980) King Abdul Aziz University Jeddah and The Islamic Foundation UK
- Ziauddin et al (Ed) – Money and Banking in Islam – (1983)- King Abdul Aziz University Jeddah and Institute of Policy Studies Islamabad.
  - Ziauddin et al (Ed) – Fiscal Policy and Revenue Allocation in Islam – (1983) King Abdul Aziz University Jeddah and Institute of Policy Studies Islamabad.
  - Siddiqui, M.N.- (1983)- Issues in Islamic Banking - Leicester, The Islamic Foundation, UK.
  - Iqbal, Munawar (Ed) – Distributive Justice and Need Fulfillment in an Islamic Economy – (1986) – IIIE, International Islamic University Islamabad.
  - Mannan, M.A.- Islamic Economics: Theory and Practice, A Comparative Study - (1986) - Cambridge, Hodder and Stoughton.
  - Sayyid Tahir et al (Ed) – (1992) - Readings in Microeconomics: An Islamic Perspective – Longman Malaysia.
  - Chapra, M. Umer – Just Monetary System – (1993) – IIIT New York and Islamic Research Institute, IIU Islamabad.
  - Taqi Usmani, Justice M – (2000) - Introduction to Islamic Finance -
  - Idarat-al- Ma'arif Karachi.
  - Siddiqui, M.N. – (2001)- Economics: An Islamic Approach – Institute of Policy Studies Islamabad and The Islamic Foundation, UK.
  - Yasin, Hafiz M. – Economic System of Islam – (1993) -Lecture Notes (mimeographed) – IIIE, International Islamic University Islamabad.
  - Badawi, Muhammad A. Zaki- Zakat and Social Justice: English transliteration of the Book: Kitab ul Amwal by Imam Abu Abaid Al-Qasim - (1979) - The Islamic Council of Europe, London.
- Chapra M. Umer (1991)- The Economic System of Islam- University of Karachi.
  - Khan, M. Fahim – (1983) - Macro Consumption Function in an Islamic Economic Framework - International Centre for Research In Islamic Economics, King Abdul Aziz University, KSA.
  - Khan M. Fahim – (1995) - Human Resource Mobilization through the Profit-Loss Sharing – IRTI, Islamic Development Bank Jeddah.
  - Khan, Tariqullah, (1996), Practice and Performance of Mudarbah: A case study of Pakistan, IRTI, Islamic Development Bank, Jeddah.
  - Mahdi, M. Ahmad, (1995), Islamic Banking Modes for House Building Finance - IRTI, Islamic Development Bank, Jeddah.
  - Mannan M.A. - (1996) - Financing Development in Islam - IRTI, Islamic Development Bank, Jeddah.
  - Naqvi, Syed Nawab Hyder- (1981)- Ethics and Economics - Leicester, The Islamic Foundation, UK.

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- Ghazanfar S.M., (2003), Medieval Islamic Economic Thoughts-Routledge Publishers.
- Nomani, Farhad & Rehnuma., Ali- (1994) - Islamic Economic Systems – Zed Books Ltd., London.
- Nuti, D. Haris, (1995), The Economics of Participation, IRTI, Islamic Development Bank, Jeddah.
- Yusaf, Imam Abu, Kita bur Kharaj, Lahore, Islamic Book Centre, 1979.
- CII Reports – Consolidated Recommendations on the Islamic Economic System (1983, 1994)- the Council of Islamic Ideology, Govt. of Pakistan.
- Siddiqui, M.N.- (1985)- Muslim Economic Thinking - Leicester, The Islamic Foundation, UK.
- Mannan M.A. (1995), Developing a System of Financial Instruments IRTI, Islamic Development Bank, Jeddah.

**ECON 408: Research Paper 3(3-0)**

**Course Contents**

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

**ECON 409: Operational Research 3(3-0)**

**Course Contents**

**Introduction**

History, Meanings and introduction to Operations Research. Art of modeling and phases of Operations Research. Discussion on different types of Operations Research models.

**Linear Programming**

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

- Graphical approach
- Algebraic solution (Simplex method, M-technique and two-phase method).
- Degeneracy, Alternative optima, unbounded solutions and Non-existing solutions.

**Duality and Sensitivity Analysis**

Definition of the dual problem. Primal Dual relationship. Economic interpretation of duality. Sensitivity Analysis.

**Transportation Model**

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

**Project Scheduling By Pert-CPM**

Meanings and purposes of Project Scheduling. Arrow diagram representation, determination of critical path and floats Construction of time chart and resource leveling. Probability and cost considerations in project scheduling. Project control.

**Inventory Models**

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

- Deterministic Models: Single-item static model, single-item model with price breaks, multiple-items static model with storage Limitations, Single-item N-period dynamic model and N-period production scheduling model
- Probabilistic Models: A continues review model, single period models and multi period model.

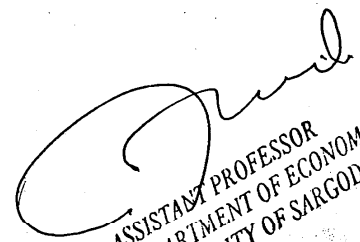
**Dynamic Programming**

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

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### Recommended Books

- Bunday, Brian D. "Basic Linear Programming," 1st edition, 1984, Edward Arnold.
- Gillet, Billy. E. "Introduction to Operations Research," 1st edition, 2001, McGraw hill.
- Hamdy Taha. A. "Operations Research An Introduction," 7<sup>th</sup> edition, 2002, Prentice Hall.
- Hillier and Lieberman. "Introduction to Operations Research," 7<sup>th</sup> edition, 2002, McGrawhill.
- Wagner, Harvey. M., "Principles of Operations Research," 2nd edition, 2001, Prentice Hall.
- Dimintris Bersimas and John N. Tsistsiklis, "Introduction to Linear Optimization" 2nd edition, 1997, Anthena Scientific.
- Fryer M. J. "Introduction to Linear Programming and Matrix Game Theory". 1st edition 1978, Edward Arnold.
- Gass M. J. "Linear Programming Methods and Application" 1st edition, 1975, McGraw hill.
- Paul-A-Jensen and Jonathan F. Brad "Operations Research Models and Method" 1st edition, 2002, Wiley.
- Waynelwinston "Operations Research Application & Algorithm" 3rd edition 1994, Duxbury Press.

  
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