UNIVERSITY OF THE PUNJAB

NOTIFICATION

It is hereby notified that the Syndicate at its meeting held on 17-12-2022 has approved the recommendations of the Academic Council made at its meetings held on 11-03-2022 & 21-03-2022 regarding approval of initiation of BS Economics & Finance (4 Years) Program alongwith Syllabi & Courses of Reading subject to fulfill of all the codal formalities at the Department of Business Economics, School of Economics with effect from the Academic Session, 2021 and onward.

The Syllabi & Courses of Reading of BS Economics & Finance is enclosed herewith as Annexure-'A'.

Admin. Block,
Quaid-i-Azam Campus,
Lahore.

Sd/-
REGISTRAR

No. D/_76 7_ /Acad.,

Dated: _3/-1_ /2023.

Copy of the above is forwarded to the following for information and necessary action:-

1. Dean, Faculty of Business, Economics & Administrative Sciences
2. Head, School of Economics
3. Chairman, Department of Business Economics
4. Controller of Examinations
5. Director, IT for placement at website
6. Admin. Officer (Statutes)
7. Secretary to the Vice-Chancellor
8. Private Secretary to the Registrar
9. Assistant (Syllabus)

Assistant Registrar (Academic)
for Registrar

BS (4 Years) Economics & Finance Program

Department of Business Economics

School of Economics

University of the Punjab, Lahore.

Table of Contents

Program Title: **BS Economics and Finance**

Department: **Department of Business Economics**

Faculty: **Faculty of Business, Economics, and Administrative Sciences**

Vision of the School of Economics

The School of Economics is committed to be an institution of excellence, following international standards, producing quality leaders in the area of economics, business and public policy, stirring debate and guiding the policy discourse through advanced cutting edge research produced by the School.

Mission of the School of Economics

Our mission is to:

- Provide a quality and affordable platform of learning and education for students from all over Pakistan, especially Punjab.
- Provide students with an outstanding academic training.
- Striking balance between research, teaching and service to the community.
- Provide teachers with stimulating and conducive environment to produce distinguished research.
- Advancing knowledge in the area of economics, governance and policy making to resolve issues and challenges faced by Pakistan.

Mission of the Department of Business Economics

The Department of Business Economics shall aspire to create and disseminate knowledge related to application of Economics towards business solutions. This shall include creation and dissemination of knowledge as well as close liaison with the business fraternity.

Introduction

Economics research and education at University of the Punjab has a rich and long history spanning over a century. The Department of Economics has played a vital role in providing valuable knowledge and enriching human resources within this field. In line with these ideals, the department introduced a two years long semester system self-supporting Master degree program in Business Economics (MBEcon) in 1997. This program was very well received by the labor market, with its graduates now placed well in their respective choice careers, both within Pakistan and in other parts of the world.

The need to expand on this success was felt. In 2018, focus was laid on enhancing the study and research of economics at University of the Punjab. After numerous discussions and feedback from all walks of life, the Department of Economics was upgraded to the School of Economics, comprising of four departments and a research center, among which is the Department of Business Economics. The department plans to introduce an undergraduate and a graduate degree program, along with certificate courses to enhance teaching of Business Economics.

Program Introduction

Over the past two decades, the world has dramatically change with the full impact of the information revolution unfolding. There is dire need to understand this changing environment, and for businesses to adapt and adjust. Economics has emerged as a key discipline, applying scientific methodology to social sciences and enabling the understanding of this changing world.

A four years BS Economics and Finance degree program will satisfy this need of the market by preparing human resources equipped with applied knowledge of economics, as well as that of the business world. The program comprises of five main category of courses:

1- Basic courses (includes languages, mathematics, etc.)
2- Diversification courses (to provide student with insights from other academic fields)
3- Core Economics courses
4- Core Finance courses
5- Courses related to chosen specialization

Program Objectives

Graduates from this program shall be able to:

1. understand various aspects of domestic and global economy especially finance.
2. analyze problems and apply critical thinking to finding solutions.
3. think logically, critically, and creatively.
4. apply algebraic, graphical, and statistical tools for problem solving
5. present ideas in any medium succinctly, with clarity and conviction.
6. communicate with clarity verbally (in English or urdu) as well as non-verbally

Market Need / Rationale of the Program

a) *Potential Students for the program*. (career needs, subject interest etc.) : those interested in economics, business, finance, solution of business problems, financial industry, etc.

b) ***Potential Employers*** (Public, private, NGOs, required skill set, industry projections, employment opportunities/estimated market demand/Number of job openings, Current and future prospects): State Bank of Pakistan, commercial banks, shadow banking industry, manufacturing and service industry, businesses at large

c) ***Academic Projections*** (The national/ international universities that have launched the similar program): The BS Economics and Finance program presented specializes in economic applications to finance. This is similar to the BS Accounting and Finance program offered by SDSB – LUMS, with the difference that the program offered at SDSB – LUMS focusses on accounting and finance. BS Economics and Finance program is currently being offered by more than 15 universities in Pakistan, and countless abroad. However, none of the universities in Pakistan can match the quality or resources as presented by the Department of Business Economics.

d) ***Faculty*** (Faculty credentials, capacity, resources sufficiency etc.) – Faculty of School of Economics will be employed, which has 11 permanent faculty members, expected to grow shortly as hiring process is underway. Overtime, Department of Business Economics shall have its own faculty to add to the existing faculty of the School of Economics.

e) ***Physical Facilities*** (Lab and library facilities etc.) – Separate office block for Department of Business Economics is under construction at the new School of Economics building. Lab and Library facilities will be in common use at School of Economics, which has a library with over 10,000 books and a computer lab (currently with 30 computers due to space limitation, expected to be of over 150 computers in the new premises)

Admission Eligibility Criteria

The admissions shall be on merit basis for both programs. The following admission criteria will be applicable:

Eligibility criteria:

- Years of Study completed: 12 years
- Study Program/Subject: Open to all with 12 years of education
- Percentage/CGPA: no minimum cut off
- Entry Test (if applicable) with minimum requirement: N/A
- Applicant must have obtained 2nd division or higher in Intermediate / A levels / other equivalent qualification.

- Applicant must be 24 years old or younger to be eligible to apply for the morning program. This is not applicable for the self-supporting program.

Merit Calculation

- 1/ 4 of total marks obtained in Matric / O levels / other equivalent qualification.
- Total marks obtained in Intermediate / A levels / other equivalent qualification.
- 10 points, if economics was studied in intermediate / A levels / other equivalent qualification.
- 5 points, if mathematics was studied in intermediate / A levels / other equivalent qualification.
- 5 points, if statistics was studied in intermediate / A levels / other equivalent qualification.
- 20 points, if the applicant is Hafiz-e-Quran.

Duration of the Program

Semesters/Years/ Credit hours – 8 semesters/ 4 years / 137 credit hours

Maximum Number of Seats:

Regular Program: 90
Self-Supporting Program: 90
* Note: The department may choose to offer for admission less than the number of seats in any given year based on resource availability and demand.

Categorization of Courses

Semester	Courses	Category (Credit Hours)				Semester Load
		Core Courses	Diversification Courses	Electives	Optionals	
1	7	11	6			17
2	7	15	3			18
3	7	9	9			18
4	7	10	9			19
5	7	15				15
6	6	13		3		16
7	6	9		6		15
8	6	7		9		16
PU	53	89	27	18		134
HEC	52	89	27	18		134
Difference	1	0	0			0

Scheme of Studies / Semester-wise workload

#	Code	Course Title	Course Type	Credit Hours
Semester I				
1	HQ-001	Tadrees e Tarjuma Quran	Core	0
2	ISE-111	Islamiyat / Ethics	Core	2
3	ENG-111	English-I (Language in Use)	Core	3
4	COMP-111	Computer (Introduction and Applications)	Diversification	3
5	STAT-101	Elementary Statistics	Diversification	3
6	ECON-101	Principles of Microeconomics	Core	3
7	MATH–111	Elementary Mathematics – I (Algebra)	Optional	3
Total Credit Hours: 17				
Semester II				
1	HQ-002	Tadrees e Tarjuma Quran	Core	1
2	CAL-111	Calculus I	Diversification	3
3	ENG-112	English II (Academic Reading & Writing)	Core	3
4	PST-111	Pakistan Studies	Core	2
5	ECON-102	Principles of Macroeconomics	Core	3
6	STAT-102	Probability & Prob. Dist.	Core	3
7	ACC-111	Principles of Accounting	Core	3
Total Credit Hours: 18				
Semester III				
1	HQ-003	Tadrees e Tarjuma Quran	Core	0
2	ENG-211	English III (Communication Skills)	Core	3
3	CAL-211	Calculus – II	Core	3
4	ECON-201	Intermediate Microeconomics	Core	3
5		Optional	Diversification	3
6		Optional	Diversification	3
7		Optional	Diversification	3
Total Credit Hours: 18				
Semester IV				
1	HQ-004	Tadrees e Tarjuma Quran	Core	1
2	ENG-212	English-IV (English for Practical Aims)	Core	3
3	ECON-202	Intermediate Macroeconomics	Core	3
4	FIN-201	Principles of Finance	Core	3
5		Optional	Diversification	3
6		Optional	Diversification	3
7		Optional	Diversification	3
Total Credit Hours: 19				
Semester V				

1	HQ-005	Tadrees e Tarjuma Quran	Core	0
2	ECON-301	Advanced Microeconomics	Core	3
3	ECON-305	Econometrics - I	Core	3
4	FIN-321	Cost and Managerial Accounting	Core	3
5	FIN-308	Financial Statements Analysis	Core	3
6	FIN-211	Intermediate Finance	Core	3
Total Credit Hours: 15				
Semester VI				
1	HQ-006	Tadrees e Tarjuma Quran	Core	1
2	ECON-302	Advance Macroeconomics	Core	3
3	ECON-405	Econometrics – II	Core	3
4	ECON-308	Monetary Theory & Policy	Core	3
5	FIN-405	International Financial Markets	Core	3
6	FIN-305	Investment Analysis	Core	3
Total Credit Hours: 16				
Semester VII				
1	HQ-007	Tadrees e Tarjuma Quran	Core	0
2	ECON-401	Public Sector Economics	Core	3
3	ECON-407	Financial Econometrics	Core	3
4	FIN-314	Risk Management	Core	3
5	FIN-403	Corporate Finance	Core	3
6		Elective	Core	3
Total Credit Hours: 15				
Semester VIII				
1	HQ-008	Tadrees e Tarjuma Quran	Core	1
2	ECON-316	Money, Banking, & Financial Institutions	Core	3
3	ECON-404	International Trade	Core	3
4	FIN-408	Financial Derivatives	Core	3
5	FIN-407	Actuarial Sciences for Economists	Core	3
6		Elective	Core	3
Total Credit Hours: 16				

Research Thesis
- Department has an option to offer the research thesis worth 06 (six) credit hours in lieu of two elective courses.
- The thesis should span over two semesters 7th and 8th Semester in lieu of one elective course in each of the two semesters.
- Eligibility Criteria:
  o Minimum of 3.0 CGPA
  o One faculty member should be willing to supervise the thesis of the student.

List of Elective Courses

Finance Specialization		
1	FIN-201	Principles of Finance
2	FIN-301	Intermediate Finance
3	FIN-303	Financial Statement Analysis
4	FIN-304	Corporate Financial Reporting
5	FIN-311	Risk Management
6	FIN-403	Financial Derivatives
7	FIN-411	Actuarial Sciences for Economists
8	FIN-402	Financial Econometrics
9	FIN-404	Corporate Finance
10	FIN-405	International Financial Markets
11	FIN-421	Fixed Income Securities
12	FIN-411	Portfolio Management
13	FIN-305	Investment Analysis
14	FIN 310	Islamic Banking and Finance
15	FIN 421	Seminar in Finance
16	FIN 422	Advanced Financial Accounting
17	FIN 322	Cost and Managerial Accounting
Management Specialization		
1	MGMT-101	Principles of Management
2	MGMT-201	Organizational Behavior
3	MGMT-304	Operations Management
4	MGMT-308	Human Resource Management
5	MGMT-403	Supply Chain Management
6	MGMT-408	Strategic Management
7	MGMT-412	Project Management
8	MGMT-414	Product Management
9	MGMT-305	Leadership and Change Management

10	MGMT-310	Organization Theory
11	MGMT-415	Entrepreneurship
12	MGMT-311	Management Information Systems

Decision Sciences and Business Analytics

1	DECS-301	Quantitative Decision Sciences
2	DESC-302	Principles of Big Data Analytics
3	DESC–303	Decision Analysis
4	DESC-304	FinTech
5	DESC-405	Business Analytics
6	DESC-401	Operations Research
7	DESC-403	Digital Marketing Analysis

Programming

1	PROG-205	Introduction to Python
2	PROG-305	Data visualization and analysis
3	PROG-408	Data Analysis using R
4	PROG-410	Data Analysis using Matlab

Economics

Sr. No.	Course Code	Course Name
1	ECON-101	Principles of Microeconomics
2	ECON-102	Principles of Macroeconomics
3	ECON-201	Intermediate Microeconomics
4	ECON-202	Intermediate Macroeconomics
5	ECON-203	Research Methods
6	ECON-204	Islamic Economics
7	ECON-301	Advanced Microeconomics
8	ECON–302	Advanced Macroeconomics
9	ECON-303	Research Methods II
10	ECON-304	History of Economic Thought

11	ECON-305	Econometrics I
12	ECON-306	Development Economics
13	ECON-307	Advanced Mathematical Economics
14	ECON-308	Monetary Economics
15	ECON-309	Labor Economics
16	ECON-310	Urban Economics
17	ECON-311	Comparative Economic Systems
18	ECON-312	Managerial Economics
19	ECON-313	Introduction to Political Economy
20	ECON-314	Agricultural Economics
21	ECON-315	Human Resource Development
22	ECON-316	Money, Banking, and Financial Institutions
23	ECON-317	Economic Principles, Strategies, and Techniques of Marketing
24	ECON-318	Population Economics
25	ECON-401	Public Sector Economics
26	ECON-402	Growth Theories and Models
27	ECON-403	Applied Economics
28	ECON-404	International Trade
29	ECON-405	Econometrics-II
30	ECON-406	Development Economics II
31	ECON-407	Major Issues in Pakistan Economy
32	ECON-408	Institutional Economics
33	ECON-409	Health Economics
34	ECON-410	Project Appraisal and Investment Analysis
35	ECON-411	Environmental and Natural Resource Economics
36	ECON-412	Economic Dynamics
37	ECON-413	International Finance
38	ECON-414	Development Policy

39	ECON-415	Experimental and Behavioral Economics
40	ECON-416	Gender Analysis in Economics
41	ECON-417	Poverty and Income Distribution
42	ECON-418	Energy Economics
43	ECON-420	Impact Evaluation Methods

List of Compulsory (Non-Field) Courses

Sr. No.	Course Code	Course Name
1	ISE-111	Islamiyat
2	ISE-111	Ethics (for non-muslims)
3	ENG-111	Language in Use
4	PST-111	Pakistan Studies
5	ENG-112	Communication Skills
6	ENG-211	Basic Writing Skills

List of Optional Courses: (Non-Economic)

Sr. No.	Course Code	Course Name
1	SOC-211	Introduction to Sociology
2	EDU-111	Introduction to Education
3	PSY-111	Introduction to Psychology
4	HIS-111	Introduction to History
5	GEOG-211	Introduction to Geography
6	PHIL-111	Introduction to Philosophy
7	URDU-111	Introduction to Urdu
8	BLAW-111	Introduction to Business Law
9	MGMT-101	Introduction to Business Administration
10	ACC-111	Principles of Accounting
11	POL-111	Introduction to Political Science
12	IR-111	Introduction to International Relations
13	JOUR-111	Introduction to Journalism

	Foreign Language	
1	ARAB-111	Introduction to Arabic
2	FREN-111	Introduction to French
3	SPAN-111	Introduction to Spanish
4	CHINA-111	Introduction to Chinese
5	GER-111	Introduction to German
6	ITAL-111	Introduction to Italian
7	TURK-111	Introduction to Turkish
8	PER-111	Introduction to Persian

Award of Degree

Degree awarding criteria stating:

CGPA percentage required to Qualify: 2.0 out of 4.0

Thesis /Project/Internship: N/A

Any other requirement, e.g. Comprehensive examination(if applicable): N/A

Faculty Strength of School of Economics

	Regular Faculty		SBP Chair	
Category	No. of Males	No. of Females	No. of Males	No. of Females
Professor	1	-	-	-
Associate Professor	2	-	-	-
Assistant Professor	2	4	-	-
Lecturer	1	1	-	-

Student Teacher Ratio

The School of Economics has 11 regular faculty members, and 629 students, putting the student-teacher ratio at 57 to 1. However, the MSc and MBEcon programs are ending in 2022 (no admissions offered in 2021). So the total student body would decrease to approx. 400 from the existing programs, while admissions to this program will build student body by approximately 90 each year.

Course Outlines

Course outlines for each course are attached. Assessment criteria is the same for all courses, in line with the university policy as follows:

Sr. No.	Elements	Weightage	Details
1	Midterm Assessment	35%	It takes place at the mid-point of the semester.
2	Formative Assessment	25%	It is continuous assessment. It includes: classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3	Final Assessment	40%	It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.

Course Code: ECON-101
Title: Principles of Microeconomics
Credit Hours: 03

Course Introduction:

This course is meant to be an introduction to the decision-making process of households, firms, and government, and the resulting allocation of resources through markets. The course examines how individuals and firms make decisions by weighing up costs and benefits, and how the interaction of their decisions leads to market and social outcomes. The objective of the course is to provide students with a clear understanding of the subject of economics as it pertains to the behavior of consumers, firms, and markets.

Learning Outcomes:

This course will help the students to

1. relate the various concepts in economic theory
2. understand the laws of Demand and Supply, their elasticity, theory of consumer behavior and production.

Course Contents:

Preliminaries	The Themes of Microeconomics, Scarcity and Economics, what is a Market? Real versus Nominal Prices, Why Study Microeconomics?
Consumer Choice	Cardinal Approach/Utility Analysis: Marginal Utility, Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility, consumer equilibrium. Ordinal Approach of Consumer Behavior: Indifference Curves, Features of Indifference Curves, Budget Line, Consumer Equilibrium. Comparative Statics
The Basics of Demand & Supply	The Market Mechanism: Demand and Supply, factors effecting the market forces, Changes in Market Equilibrium.
Elasticities	Price Elasticity of Demand, Price Elasticity of Supply, Point versus Arc Elasticities, Computing Elasticities, Price Elasticity and Total Expenditure, Cross-Price Elasticity of Demand, Income Elasticity of Demand.
Price Changes and Welfare	Consumer Surplus and producer surplus, price effect, Income effect, and Substitution Effect
Technology and Production	The Technology of Production, Production with one Variable Input (Labour), Production with two Variables, Inputs, Returns to Scale
Cost and Revenue	Measuring Cost: Which Costs Matter? Costs in the Short Run, Costs in the Long Run, Long Run versus Short Run Cost Curves. Average, total, marginal cost curves.

	Measuring revenue: total, average, and marginal revenue.
Market Structures	Introduction to markets – Perfect competition, monopoly, monopolistic competition, oligopoly. Difference in revenue between perfect competition and other market types. Profit Maximization, derivation of supply curve under perfect competition. Introduction to factor markets

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.
- Use cases related to business applications
- Student projects and presentations.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Bernanke, B. (2000) *Principles of Microeconomics* (Latest Edition)
- Colander, *Principles of Microeconomics* (Latest Edition)
- Gans, J.S., King, S.P. & Mankiw, N.G. (2012). *Principles of Microeconomics* (5th ed.), Cengage Learning.

Supplementary Material:

- Fuller, N. (1997). *Principles of Microeconomics*. (Latest edition). Tudor Business Publisher.
- McConnell, C., Bruce, S. (2006). *Principles of Economics.* (17th edition). McGraw-Hill.

Course Code: ECON-102

Title: Principles of Macroeconomics
Credit Hours: 03

Course Introduction:

This course is designed for the beginners with no formal background or little acquaintance with economics. The objective is to give the students an idea 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.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the structure of the economy and have a thorough understanding of the key macroeconomic terminologies
2. Apply these macro-economic theories to the real world situations.

Course Contents:

Introduction	The economy in aggregate, Complexities of the world of business, Scope of macroeconomics, Brief account of the development of macro-economic after the World War-II, Concept of business cycles: Boom and Depression, Concepts of Inflation and Unemployment, Price Indices and Inflation, the simple macroeconomic models, Lead and Lagged variables, Exogenous and Endogenous variables and their functional relationships, Macro-models as abstraction from the real economy.
Macroeconomics: The Classical Framework	Ingredients of the classical model: The Says Law of Market, The Quantity theory of money, The marginal productivity theory, Equilibrium in the goods and money market, A critical appraisal of classical model, classical dichotomy.
National Income	Definition and concept of national income, 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. 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.
Money and Banking	Money: definition, forms and functions, The demand for 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, Commercial banking, Monetary policy: brief introduction. Central Bank and its functions with reference to the State Bank of Pakistan.
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, Fiscal policy: meaning and objectives.
International Trade	Global distribution of resources, Concept of imports and exports, Currency exchange rates, Balance of Payments: causes of deficits in BOP of Pakistan and remedial measures,

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Mankiw, G. (1998). *Principles of Economics* (Latest Edition). South West Publishers.
- McConnell, C., Brue, S., Flynn, S. (2009). *Macroeconomics* (Latest Edition). McGraw-Hill
- Parkin, M. (2012). *Macroeconomics* (Latest Edition). Prentice Hall.
- Samulson, P., Nordhaus, S. (1996). *Economics* (Latest Edition). McGraw Hill. Inc.

Course Code: ECON-201
Title: Intermediate Microeconomics
Credit Hours: 03
Prerequisite: Principles of Microeconomics, Calculus I

Course Introduction:

The course seeks to provide an understanding of the core economic models for the analysis of decisions by consumers, firms, and markets. It would focus on illustrating the functionality of certain core microeconomic models. The objective of this course is to enable students to develop ability to use analytic reasoning to understand and apply basic models of microeconomic theory. Simple Calculus and Graphical methods will be used extensively.

Learning Outcomes:

On completion of this course, students would be able to,

1. Have complete knowledge of the different types of market structures
2. Understand why some producers reap abnormal profits while other are driven out of the business.
3. Have an insight of the different business strategies employed by the firms.

Course Contents:

Consumer Theory	Consumer Preferences, Well-Behaved Preferences, Indifference Curves, Budget Constraint. Utility Functions, Utility Maximization, Choice, Deriving the Demand Curve, Consumer Surplus. The idea of revealed preference
Goods classifications	Elasticity computation. Normal and Inferior Goods, and Giffen Goods, Substitutes and Complements, The Price and income Offer Curves, Engel curve, The Inverse Demand Function
Price Effects	Substitution Effect, Income effect, Sign of Substitution Effect, Total Change in Demand, Rates of Change, Law of demand, Compensating Demand Curves.
Technology	Inputs and Outputs, Describing Technological Constraints, Examples of Technology, Properties of Technology, Long Run and Short Run
Cost and Revenue	Cost Minimization, returns to Scale and the Cost Function, Long Run and Short Run Costs, Fixed and Quasi-Fixed Costs, Sunk Costs.
Profit under perfect and imperfect markets	Profits: Short run and long run profit maximization. Comparative Statistic, Profit Maximization and Returns to Scale (with respect to production technology and profits)
Monopoly	Maximizing Profits, Linear Demand Curve and Monopoly, Markup Pricing, Inefficiency of Monopoly, Deadweight Loss of Monopoly, what causes Monopolies?

Monopoly Behavior	Price Discrimination, First-Degree Price Discrimination, Second-Degree Price Discrimination, Third-Degree Price Discrimination, Bundling, Two-Part Tariffs, Monopolistic Competition.
Factors Market	Introduction to the market of factors of production, demand and supply curves, derivation of derived demand curve, market equilibrium, monopsony

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Maddala, G. S. (2004), *Microeconomics: theory & applications* (Latest Edition). Tata McGraw-Hill Education: New York.
- Nicholson, W. (2000). *Intermediate microeconomics and its applications* (Latest Edition). Dryden Press: New York.
- Varian, H. R. (2009). *Intermediate Microeconomics: A Modern Approach* (8th ed.). W.W. Norton & Company.

Course Code: ECON-202
Title: Intermediate Macroeconomics
Credit Hours: 03
Prerequisite: Principles of Macroeconomics

Course Introduction:

This course is built on the macroeconomic concepts developed in the course on Principles of Macroeconomics. It will enable students to use various macroeconomic concepts to study the dynamics of an economy at a more advanced level. Students will be able to think critically and to formulate their own perspective on various macroeconomic issues

Learning Outcomes:

This course would help the students to:

1. develop a consistent and logical method of identifying economic variables.
2. comprehend the concepts related to macro variables and their relationship with each other.
3. to resolve macroeconomic problems them in both a closed and open economy through alternative policies.

Course Contents:

Introduction	The Keynesian revolution and growth of Macroeconomics, Actual vs. Potential Output, Analytical approach to macroeconomics, Okun'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.
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, Random Walk hypothesis.
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 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.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Blanchard, Oliver (1998). *Macroeconomics* (Latest Edition). Prentice Hall International.
- Dornbusch, Fisher, (1988), *Macroeconomics* (Latest Edition). McGraw Hill Inc.
- Froyen, R. (1995) *Macroeconomics: Theories and Policies* (Latest Edition). Macmillan

- Mankiw, G. (1999). *Macroeconomics* (Latest Edition). Worth Publishers, NY.
- Shapiro, E. (2001) *Macroeconomic Analysis* (Latest Edition). Harcourt Brace Inc.

Course Code: ECON-203
Title: Research Methods- I
Credit Hours: 03
Prerequisite: Elementary Statistics

Course Introduction:

The primary objective of this course is to develop research orientation among the students and to acquaint them with fundamentals of research methods. Specifically, research methods I aims at introducing the basic concept of research methodology, hallmarks of scientific research, hypothetico-deductive and inductive method of research, review of literature, bibliography manger software, components of theoretical framework, hypothesis formulation and elements of research design.

Learning Outcomes:

In the course the students should be able to:

1. Define a research question

2. Write a research proposal

3. Perform literature search

4. Review, summarize and synthesize paper found in search

5. Present the information in a variety of formats to a variety of audiences.

Course Contents:

Introduction to Research	Meaning of research, objectives of research, research methods versus research methodology, types of research in three perspective. Application perspective: basic versus applied research. Objective perspective: qualitative versus quantitative research types. Mode of enquiry perspective: structured and unstructured approach. Classification of research, inductive versus deductive logic. Time in research: cross sectional versus longitudinal.
Scientific Investigation	The hallmarks of scientific research: purposiveness, rigor, testability, replicability, precision and confidence, objectivity, generalizability and parsimony. The seven-step process in hypothetico-deductive method: identification of broad problem area, defining problem statement, developing hypothesis, determine measures, data collection, data analysis and interpretation of data. Some obstacles to conducting research in economics.
Research Questions	How problem can be translated into problem statement? General and specific research questions, developing research questions in different situations, role of research questions. Basic types of questions: exploratory and descriptive.
The Critical Literature Review	What is literature review? How to approach the literature review? Evaluating the literature and documenting the literature review.

	Familiarization with APA citation format for referencing relevant material. Ethical issues: plagiarism. Introduction to bibliography manager software.
Theoretical Framework and Hypothesis Development	Need of theoretical framework in deductive research, definitional concept of theoretical framework, four main types of variables: dependent, independent, moderating and mediating. How theory is generated? The components of a theoretical framework. Hypothesis development: directional and non-directional hypothesis.
Elements of Research Design	Research strategies: experiment, survey research, observation, case studies, grounded theory, action research and mixed methods. Extent of researcher interference with the study. Study setting. Units of analysis: individuals, dyads, groups, organizations and cultures. General overview of research methods, quantitative (multivariate) methods, qualitative (interpretive) methods and mixed methods.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.
- To work on an independent research project.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Greenlaw, S. (2003). *Doing Economics: A Guide to Understanding and Carrying Out Economics Research* (Lastest Edition). South Western Cengage Learning.
- Kothari, C.R, (2008). *Research methodology: Methods and techniques* (Latest Edition). New Delhi, New Age International Publishers.
- William, G., (2002). *Business Research Methods* (7th Edition). Zikmand publications.

Additional Readings:

- Sekaran, U. (2006). *Research methods for business: A skill building approach* (Latest Edition). Singapore, John Wiley and Sons.
- Singleton, Straits, (2004) *Approaches to social research* (5th edition.). Oxford University Press

- Teddlie, C., Tashankkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences* (Latest Edition). Sage Publication

Course Code: ECON-204
Title: Islamic Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics

Course Introduction:

The main objective of this course is to acquaint students with the economic aspects of Islamic principles and their application to analyze contemporary economic problems. The course helps to build nexus between the Islamic principles and mainstream economic theories. The topics covered in this course range from microeconomic to macroeconomic concepts pertaining to fundamentals of Islamic thoughts.

Learning Objectives:
The students will learn:
1. The differences between contemporary and Islamic methods
2. Islamic approach to dealing with economic problems.

Course Contents:

Introduction and Theory	Economic Problem and Islamic View of Life, Sources of Islamic Economics, Nature & Need of Islamic Economics, Moral Values & Economic System of Islam
Islam and Other Economics Systems	Economic System of Islam, Capitalism, Socialism
Consumption and Production in Islam	Islam & Consumption of Wealth, Theory of Consumer Behavior in an Islamic Society, Islamic Approach to Production Purpose, Musharka (Partnership), Modarbah, Behavior of Firm Under the influence of Islamic Spirit, Islam & Price Mechanism
Islam and Distribution of Wealth	Circulation of Wealth, Rent, Profit, Wages and Dignity of Labour, Measures to Stop Concentration of Wealth, Legal Measures (Zakat & Inheritance), Optional Measures (Sadqat & Alms, Charity of Surplus & Auqaf)
Prohibition of Interest & Interest Free Banking	Prohibition of Interest, Interest Free Banking, Model of Interest Free Banking, Islamic Modes of Financing (Bai Salam, Bai Murabaha, Bai Muajjal, Ijara, etc.)
Fiscal Policy	Islamic State & its Fiscal Policy, Instruments of Fiscal Policy in Islam, Bait-ul-Mal, Theory of Taxation in Islam, Public Expenditures in Islamic Economy, Zakat & Ushr Ordinance

Some Topics from current Perspective of Islamic Economics	Economic implication of Zakat, Islamic Inheritance Law and its Economic Implications, Theory of Taxation in Islam (Ibn-e-Khaldun and Theory of Taxation), Takaful and Islamic insurance policies in Pakistan, Islamic Financial System: Theory and Practice.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Textbooks and Supplementary Readings:

- Dar A.H., Akram, M. (1996) *Islamic Economics* (Latest Edition). Ilmi Kitab Khana, Lahore
- Mirakhor, A., Askari, H. (2017). *Ideal Islamic economy: an introduction* (Latest Edition). Springer.
- Usmani, M. T., Usmānī, M. T. (2002). *An introduction to Islamic finance -Vol. 20* (Latest Edition). Brill.

Course Code: ECON-301
Title: Advanced Microeconomics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics

Course Introduction:

This course approaches microeconomic analysis at an advanced level, presenting some formal techniques used in economic research. The course covers the main topics of microeconomics from consumer and producer behavior, game theory and asymmetric information. The course is designed to make students comfortable with the tools and methods of microeconomic analysis and to teach how to structure and analyze problems on these areas from a quantitative perspective

Learning Outcomes:

On completion of this course, students would be able to

1. Explain how the consumers and producers will take decisions
2. Understand the equilibrium states of consumer and producers in given economy states.
3. Compare the modern cost theories with traditional cost theories.
4. Analyze and study different market structures and compare the functioning of all the structures in the economy.

Course Contents:

Review of Consumer Behavior	Budget constraints, preferences, choice, intertemporal choice, supply, equilibrium, perfectly competitive markets
Oligopoly	Choosing a Strategy: Quantity vs Price Leadership model, Comparing Price Leadership and Quantity Leadership, Introduction to Simultaneous Quantity Setting, Cournot Equilibrium, Simultaneous Price Setting, Collusion.
Externalities and Public Goods	Externalities, The Inefficiency of Competition with Externalities Supply-and-Demand Analysis, Cost-Benefit Analysis, Regulating Externalities Emissions Fees versus Standards under Uncertainty, Market Structure and Externalities Monopoly and Externalities Monopoly versus Competitive Welfare with Externalities, Taxing Externalities in Noncompetitive Markets, Public Goods, Types of Goods, Markets for Public Goods, Allocating Property Rights to Reduce Externalities, Open-Access Common Property, Overuse of Open-Access Common Property, Solving the Commons Problem, Free Riding, Reducing Free Riding, Valuing Public Goods.
Welfare	Aggregation of Preferences, Social Welfare Functions, Welfare Maximization, Individualistic Social Welfare Functions, Fair Allocations, Envy and Equity

Asymmetric Information	Problems Due to Asymmetric Information, Signaling and Screening, Education as a Signaling Model, Adverse Selection, Adverse Selection Problem in Insurance Markets and Labour Markets, Hidden Actions, Moral Hazard in Insurance Markets and Product Markets, Employer-Employee Relationships
Choice under Uncertainty	Gambles and Contingent Commodities, Applications of Contingent Commodities, Insurance, Diversification, Risk Spreading
Game Theory	Introduction to games, Nash equilibrium, pure strategies, mixed strategies, dominated actions, bargaining, formation of beliefs, extensive games with perfect information, Stackelberg's model of duopoly,

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- MasColell, A. (1995). *Microeconomic Theory* (Latest Edition). Oxford University Press: New York.
- Jehle, G. A., Philip, J. R. (2000). *Advanced Microeconomic Theory* (Second edition). Addison Wesley.
- Mansfield, E., Yoke, G. (2010), *Microeconomics* (11th Ed.). Viva Books: New York.
- MasColell, A., Whinston, M., Green, J. R. (1995). *Microeconomic Theory* (Latest Edition). Oxford University Press.
- Nicholson, W.,Snyder, C. (2009). *Intermediate Microeconomics and Its Application* (11th Edition). Cengage Learning.
- Perloff, J. M. (2013). *Microeconomics: Theory & Applications with Calculus* (3rd Edition). Pearson Supplementary Texts

Course Code: ECON-302

Title: Advanced Macroeconomics
Credit Hours: 03
Prerequisite: Intermediate Macroeconomics

Course Introduction:

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. They must have a strong theoretical foundation to understand the real problems of the economy with particular emphasis on inflation, unemployment, and instability, to which the developing countries are confronted at present.

Learning Outcomes:

After the completion of this course, students would be able to:

1. Develop the foundation of modern macroeconomic theory in the light of different schools of thought
2. Analyze the working of the economy in the perspective of relevant policy issues
3. Apply key concepts of modern macroeconomic in their own research

Course Contents:

Aggregate Supply and the Labor Market	The aggregate production function, Demand for Labor in the short run, Labor market and its Equilibrium: Rigidity versus flexibility of nominal wage rate, 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.
The Supply Side Economics	Derivation of Aggregate Supply under the Classical and Keynesian assumptions, Interaction of aggregate demand and supply and price determination, 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 in developing economies.
Inflation and Unemployment	The relationship between inflation and unemployment, Phillips curve in the short-run and long-run, The expectation-augmented Phillips Curve, The Perfect Foresight and adjustment, Remedial measures to combat 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 Open Economy Macroeconomics	The IS-LM-FB Model, The case of a small open economy with special reference to developing countries, The relative effectiveness of fiscal and monetary policies under the fixed and floating exchange rate regimes, The managed exchange rate systems, Determinants of Exchange rates, Devaluation and its impacts for developing countries, Problem of stabilization in 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.
Growth and Business Cycles	The accumulation of capital, Acceleration principle and the concept of steady state growth path, The steady state conditions, The basic Neoclassical (Solow) growth model, Golden rule for consumption and investment (capital accumulation), The role of technical progress in growth, Introduction to the theory of Real Business Cycles: Labor market, Technology shocks, Household Behavior, the persistence of output Fluctuations.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Branson, W. (2006). *Macroeconomics: Theory and Policy* (Latest Edition). Harper and Row, New York.
- Froyen, R. (2002). *Macroeconomics: Theories and Policies* (Latest Edition). Prentice Hall
- Gupta, G. S. (2006). *Macroeconomics: Theory and Applications* (Latest Edition). Tata McGraw Hill Publishing Company, New Delhi
- Mankiw, G. (1998). *Macroeconomics* (Latest Edition). Worth Publisher, New York.
- Romer, D. (1995). *Advanced Macroeconomics* (Latest Edition). McGraw Hills, New York.

- Scarth, W. M. (1999). *Macroeconomics: An Introduction to Advanced Method* (Latest Edition). Dryden Press: Harcourt Brace & Company.

Course Code: ECON-303
Title: Research Methods- II
Credit Hours: 03
Prerequisite: Research Methodology-I
Course Introduction:

Research methods II is divided into two main parts. Part I includes measurement of variables, operational definitions and scales, reliability and validity, data collection methods (primary, micro and macro) and sampling methods. Part II covers basic quantitative and qualitative data analysis using statistical software, elements of research proposal and steps in report writing.

Learning Objectives:
 In this course students will learn how to
1. Define and clean data
2. Work with secondary data
3. conduct research analysis.

Course Contents:

Part I	
Measurement: Scaling, Reliability and Validity	Four types of measurement scales and their properties. Rating scales: definition and its types. Ranking scales: definition and its types. Examples and exercises to practical scales. Construct validity: internal and external. Goodness of measures, reliability and stability measures.
Data Collection Methods	Sources of data, experiments, survey design, field study, methods of collecting primary and secondary data, guidelines for questionnaire design, quantitative data collection, qualitative data collection, mixed data collection techniques, selection of appropriate method for data collection.
Sampling	What is sampling process? Defining population, determining sampling frame, sampling design and appropriate sample size. Discussion on simple random sampling, systematic sampling, clustered sampling, convenience sampling, quota sampling, judgement sampling and snowball sampling. How to select appropriate sampling technique? Issues of precision and confidence in determining a sample size.
Part II	
Quantitative Data Analysis	Coding and data entry in statistical software. Getting a feel for the data: frequencies, summary measures, bar charts, pie charts. Relationship between two nominal variables: chi-square test. Correlations and testing goodness of measures using statistical software. Basic regression analysis.

Quantitative Data Analysis: Hypothesis Testing	Basic concepts and procedure for hypothesis testing, type I and type II errors, statistical power choosing appropriate statistical technique: univariate versus multivariate. Test of hypothesis about mean and difference between means, Test of hypothesis about proportions and difference between proportions, variance, equality of variance, and correlation coefficient. Limitations of test of hypothesis.
Qualitative Data Analysis	Three important steps in qualitative data analysis: data reduction, data display and drawing conclusions. Coding and qualitative data entry in statistical software. Reliability and validity in qualitative research. Compare and contrast content analysis, narrative analysis and analytic induction.
Research Proposal	Meaning and need of research proposal, steps in writing a research proposal, layout of research proposal, types of research proposal and oral presentation.
Steps in Report Writing	Abstract, introduction, literature review, methods and data collection, findings and interpretation, conclusion, suggestions, future prospects, references.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.
- To require each student to work on independent research project with data analysis.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Kothari, C. R. (2008). *Research methodology: Methods and techniques* (Latest Edition). New Delhi, New Age International Publishers.
- Monette D. R., Sullivan, T.J., Dejong, C.R. (2010). *Applied social research: A tool for the human services* (Latest Edition). Belmont, CA: Linda Schreiber-Ganster.
- Saunders, M. (2005). *Research methods for business studies* (Latest Edition). Singapore, Pearson Education

- Sekaran, U. (2006). *Research methods for business: A skill building approach* (Latest Edition). Singapore, John Wiley and sons.

Course Code: ECON-304
Title: History of Economic Thought
Credit Hours: 03
Prerequisite: Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

The main objective of this course is to introduce students with difference schools of thoughts in economics. This course surveys the main schools in the history of the development of economic thought, beginning with the Classical school and concludes with the recent work in field of economics.

Learning Outcomes:

After the completion of this course, the students will be able to understand the following:

1. Historical background of various schools of economic thought and social, political and economic environment within which a specific school emerged.
2. The major tenets of the school, enabling a concise presentation of the essence of each school
3. The beneficiaries of a specific school during its time period
4. The utility and validity of the school in its time
5. The tenets of the school which made the lasting contribution and helped in the emergence of modern economics
6. The key debate and the socio-political context in which the main texts were written
7. The ability to appreciate and analyze primary texts, including their contemporary relevance

Course Contents:

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 Salient Features of Muslim School of Thought.
Mercantilists and the Physiocrates	The Middle Ages and the Scholastics, Mercantilism – French and English, The Rise of Science and Scientific Method, The French Enlightenment and the Physiocrats, A doctrine of economic process, transition to liberalization: Wage theory to natural price, the task of government. Overtime, Changing Role of Government
Classical School	The Contributions of Classical School: Adam Smith, Malthus (Life and Times, The Essay on Population, The Principles of Economics, Interpretative Issues), Ricardo (Life and Times – Utilitarians, Napoleon, Politics, Corn Laws, Ricardo's Contributions, Ricardians

	and the anti-Ricardo reaction, Interpreting Ricardo) and Karl Marx (Origins of Marx's Thought – Hegel, Utopian Socialists, and British Political Economy , Marx's Laws of Motion of Capitalism – Exposition and Appraisal , The Marxian Tradition).
The Marginal Revolution	Hutchison's analysis of reaction to politics, theory, method, The Early Marginalists – dehomogenizing the emphasis on utility, Jevons – utilitarian theory , Menger – subjectivism and unintended consequences, Walras – general equilibrium and Pareto, The German Historical School and the *Methodenstreit*.
Alfred Marshall and the Cambridge School	His life, his influence on Cambridge, his economics, The Principles of Economics, The Marginal Revolution Redux – the Mirowski Thesis
Keynesian and Post Keynesian Schools	The Keynesian and Post Keynesian Schools, The Great Depression: Economic Policies and Capitalist Instability between the World Wars. The 20th 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 1970s and International Responses. Failure of Trickledown 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.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%

Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Blaug, M. (1988). *Economic Theory in Retrospect* (Latest Edition). Cambridge University Press.
- Caldwell, B. (2004). *Hayek's Challenge: An Intellectual Biography of F.A. Hayek*. University of Chicago Press.
- Henery, J. D. (1992) *The Future of Economics* (Latest Edition). Blackwell Publishers.
- Rima, I. (2009). *Development of Economic Analysis* (7th edition). Routledge, Taylor & Francis Group, London.
- Rothbard, M. N. (2009). *Economic Thought Before Adam Smith* (Latest Edition).

- Smith, A. (1776). *The Wealth of Nations*. University of Chicago Press
- Spiegel, H. W. (1991). *The Growth of Economic Thought* (3rd ed.). Duke University Press
- Tucker,R. (1978). *The Marx-Engels Reader* (2nd ed.). Norton

Course Code: ECON-305
Title: Econometrics-I
Credit Hours: 03
Prerequisite: Elementary Statistics, Probability and Probability Distributions

Course Introduction:

This is a foundation course for enabling the students of Economics to analytically formulate and statistically estimate the economic problems for verifying the empirical validity of theoretical models. The analytical skill is supported by the usage of different Econometrics Software.

Lab work

The students are required to devote at least two hours per week to computer laboratory. They have to attend classes to learn various Econometrics software for practical application of Econometric models they have learnt so far.

Learning Outcomes:

On completion of this course, students would be able to

1. Have a complete knowledge of the basic concepts of the subjects thus enabling them to attain higher education in the field of econometrics
2. This course will enable the students to apply tools of mathematics and statistics to to identify the relationships between economic variables
3. This will help the students to estimate and evaluate some of the basic and advanced econometric models
4. It will guide the students to use econometric models for forecasts and managerial decision making.
5. It will also help the students in conducting the research work necessary for completing B.sc Honor programme

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. Data Types and Sources, Cross-sectional data, time-series data and pool data, Data at current and constant prices, Sources of data.
The Simple Two-Variable Model	Simple Regression function, population and regression function, linear regression function: linearity in variables and linearity in parameters, Simple Regression Analysis: Estimation, Method of Ordinary Least Squares (OLS), Estimation of regression equation using OLS, Standard error of estimates, Numerical properties of OLS estimators, Statistical properties of OLS estimators (BLUE), Classical Linear Regression Model (CLRM), Assumptions of CLRM, Estimation of the coefficient of

	determination, Interval estimation of regression coefficients, Classical Normal Linear Regression Model (CNLRM), Difference between CLRM and CNLRM, Properties of OLS estimates under CNLRM, Simple Linear Regression Analysis: Inference, Confidence interval approach for regression coefficients, Test of significance approach for regression coefficients, Analysis of variance (ANOVA), Test of the overall significance of the model, Simple Linear Regression Analysis: Extensions, Regression through the origin, Scaling and measurement of variables, Functional Forms of Regression Function, Log linear models, Cobb Douglas production function Log-Lin models, The constant growth model, Estimating the growth rate, Lin-Log models, Engel curve, Reciprocal models.
The Multiple Linear Regression Model (MLRM)	Multiple Regression Analysis, Difference between simple and multiple regression analysis, Interpretation of multiple regression function, Multiple Regression Analysis: Estimation, OLS estimation of multiple regression equation, Standard error of partial regression coefficients, Properties of OLS estimators, Coefficient of determination (R^2), R^2 and Adjusted R^2 , Multiple Regression Analysis: Inference, Test of individual significance (t-test), Test of overall significance (F-test) Multiple Regression Function: Extensions, Testing the equality of parameters, Testing linear equality restriction, Testing for structural stability of regression models: The Chow test.
Categorical Variables in regression	Nature of dummy variables, ANOVA models with qualitative variables, Regression with dummy independent variables
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.
Multicollinearity	Linear relationship between any two explanatory variables, Nature and severity of the problem, OLS estimation of regression equation in the presence of perfect multicollinearity, Causes of multicollinearity, Distinction between perfect and partial Multicollinearity, Detection of the problem and remedial measures.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course including the lab work.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Gujrati, D. J. (2003) *Basic Econometrics* (4th Edition) McGraw-Hill Company.
- Maddala, G. S. (1988) *Econometrics* McGraw-Hill Company.
- Dougherty, C. (2002). *Introduction to Econometrics* (2nd edition) Oxford University Press.
- Pindyck & Rubinfeld (1992). *Econometric Models & Economic Forecasts* (3rd Edition). McGraw-Hill Inc.
- Stock H. J. and M. W. Watson (2003). *Introduction to Econometrics* Pearson Education.

Course Code: ECON-306
Title: Development Economics-I
Credit Hours: 03
Prerequisite: Intermediate Macroeconomics and Intermediate Microeconomics

Course Introduction:

This course examines the process of economic development, including the determinants of underdevelopment and poverty. We will focus on describing and understanding the many problems faced by developing countries and their citizens. Throughout the course, we will discuss policy implications of the topics we explore. We begin with an overview of economic development and models economists use to understand the process of economic development. Next, we consider the impediments to development and how they can potentially be addressed.

Learning Outcomes:

Upon completion of the course students should be able to:

1. Explain the key concepts of Developments Economics and Identify its role in devising the economic policies of the country
2. Identify various perspectives on current and controversial issues regarding development (dependence on foreign aid, pollution, trade-off between industrial and agricultural sector, trade openness). Identify their position and be able to support it
3. Understand the economic theory that has shaped the disciplines of economic development
4. Analyze the economic rationale underlying policy choices
5. Critically reflect on the theories of development and develop an analytical view and coherent opinion about economic changes within low-income countries

Course Contents:

The Concept & Nature of Development	The Nature of Development Economics, Why Study Development Economics? Traditional Economic Measures, Amartya Sen's "Capability" Approach, development versus growth, development variables, Basic Indicators of Development: PPP (purchasing power parity), PQLI (physical quality life index), human development index (HDI) and Governance index (GI). Characteristics of developing countries.
Contemporary Models of Development and Underdevelopment	Underdevelopment as a Coordination Failure, Multiple Equilibria: A Diagrammatic Approach, The Big Push, Michael Kremer's O-Ring Theory of Economic Development, The Hausmann-Rodrik-Velasco Growth Diagnostics Framework.
Poverty and Inequality	Measuring Income Distribution & Poverty, Absolute Poverty, Social Welfare, Dualistic Development and Shifting Lorenz Curves: Some

	Stylized Typologies, Kuznets's Inverted-U Hypothesis, Economic Characteristics of High-Poverty Groups.
Population Growth and Economic Development	The Basic Issue: Population Growth and the Quality of Life, Population Growth: Past, Present, and Future, The Demographic Transition, The Causes of High Fertility in Developing Countries: The Malthusian and Household Models, The Consequences of High Fertility: Some Conflicting Perspectives.
Urbanization and Rural-Urban Migration	Theories of Urban Growth, Agglomeration Economies, Urban Unemployment, Migration and Development, Toward an Economic Theory of Rural-Urban Migration, Comprehensive Migration & Employment Strategy
Human Capital: Education and Health	Education & Health in Development, International Trends, The Human Capital Approach, The Gender Gap: Discrimination in Education and Health, The Political Economy of Educational Supply and Demand: The Relationship between Employment Opportunities and Educational Demands, Social versus Private Benefits and Costs, Health Measurement and Distribution

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to work on research project and present it.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Herrick B., Kindleberger C. (1990) *Economic Development* (Latest Edition). McMillan, New York.
- Jones H. G. (1990) *An Introduction to Modern Theories of Economic Growth*, (Latest Edition), McGraw Hills
- Todaro & Smith (2014). *Development Economics* (12th Edition). Pearson

Recommended Research Articles:

- Cruz, M., Foster, J.E., Quillin, B. and Schellekens, P. (2015). *Ending Extreme Poverty and*

Sharing Prosperity. Women and Contraceptives
http://www.cnn.com/2012/07/09/opinion/gates-contraception-families/index.html

- Tacoli, C., McGranahan, G. and Satterthwaite, D. (2015). *Urbanisation, rural-urban migration and urban poverty*. Human Settlements Group, International Institute for Environment and Development.
- Economist "*Healthcare in Poor Countries: For 80 cents More*" August 15, 2002
http://www.economist.com/node/1280587

Course Code: ECON-307

Title: Advanced Mathematical Economics
Credit Hours: 03
Prerequisite: Calculus –I & Calculus -II

Course Introduction:

In this course, particular focus is on applying the mathematical tools on economic theory and models. The level of sophistication at which the material is to be taught is indicated by the Course Contents of the prescribed textbooks.

Learning Outcomes:

1. On completion of this course, students would be able to
2. Apply mathematical techniques for better understanding of economic theory
3. Relate mathematical methods most relevant to economics and fully explain each method
4. Illustrate how the method is applied in economic analysis
5. Use mathematical tools for understanding the relationship between Micro and Macroeconomic variable

Course Contents:

First Order Linear Differential Equations	Meaning and Definition; Homogenous & non-Homogenous Cases. Solution of First Order Linear Differential Equation with Constant Coefficient & Constant Term and its Verification. Economic Applications: Dynamics of Market Price, Dynamics of Consumption using Differential Equations.
Microeconomic Applications of First Order Linear Differential Equations:	Dynamics of Investment using Differential Equations. Dynamics of Value of Oil Well, Dynamics of Value of Gold Mine, Dynamics of Future Value of Investment, Dynamics of Fuel Consumption, Limited Growth, Dynamics of Ore Mining, Dynamics of Fish Stock.
Macroeconomic Applications of First Order Linear Differential Equations:	National Income Determination using Differential Equations, Dynamics of Population, Dynamics of Government Spending, Dynamics of Unemployment.
First Order Differential Equation with Variable Coefficient and Variable Term	Solution and its Verification of First Order Differential Equation with Variable Coefficient and Variable Term.
Non-linear Differential Equations of the First	Exact Differential Equation, its Solution and Verification. Production Function using Exact Differential Equations, Utility Function using Exact Differential Equations, Average Cost Function using Exact Differential

Order and First Degree.	Equations, Point Elasticity Formula using Exact Differential Equations. Separable Variables. Dynamics of Capital using Separable Variables Method. Bernoulli Equation. The Qualitative Graphic Approach. Concept of Phase Diagram, types of Time Paths and their Dynamic Stability. Economic Application: Solow Growth Model: Qualitative Analysis, Phase Diagram and Quantitative Analysis.
Trigonometry and Complex Numbers	Fundamentals of trigonometry, Trigonometric identities. Imaginary and Complex Numbers. Complex Roots. Circular Functions. Properties of Sine & Cosine functions. Euler Relations. Alternative Representation of Complex Numbers.
Second Order Differential Equations	Solution and Verification of Second Order Linear Differential Equations with Constant Coefficient and Constant term-Distinct Real Roots, Repeated Real Roots and Complex Root Cases. Dynamic Stability of Equilibrium. Economic Applications: A Market Model with Price Expectations. The Interaction of Inflation and Unemployment. Phillips Curve: The Phillips Relation, Expectations Augmented Phillips Relation, Feedback from Inflation to Unemployment, Time Path of Expected Rate of Inflation, Time Path of Expected Rate of Inflation – Numerical, Time Path of Inflation – Numerical, Time Path of Unemployment – Numerical.
Differential Equations with Variable Term	Differential Equation with Variable Term, Differential Equation with Variable Term: A Modification.
First Order Difference Equations	Solution and Verification of First Order Difference Equations. The Dynamic Stability of Equilibrium. Economic Applications – The Cobweb Model, A Market Model with Inventory. Harrod Model of Growth, Lagged Income Determination Model, Income Dynamics with Induced Investment, Capital Market, Money Market and Balanced Trade using Difference Equations. Investment Dynamics using Difference Equations. Fish Stock Analysis using Difference Equation, Difference Equations and Adaptive Expectations.
Second Order Difference Equations	Solution and Verification of Second-Order Linear Difference Equations with Constant Coefficients and Constant Term-Distinct Real Roots, Repeated Real Roots and Complex Roots cases. The Convergence of the Time Path. Economic Applications, Samuelson Multiplier-Acceleration Interaction Model. Inflation and Unemployment in Discrete Time. Second-Order Difference Equation with Variable Term, Second-Order Difference Equation with Variable Term (ct^n)

Higher Order Differential and Difference Equations	Solution of Higher Order Differential Equations with Constant Coefficient and Constant Term. Convergence and the Routh Theorem. Higher Order Linear Difference Equations and their Solutions. Convergence and Schur Theorem.
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.
Non-Linear Programming:	The Nature of Non Linear Programming Non-Linearities in Economics. Kuhn Tucker Condition. Interpretation of Kuhn Tucker Condition. Kuhn Tucker Sufficiency Theorem: Concave Programming. Arrow Enthoven Sufficiency Theorem: Quasiconcave Programming. Economic Application-Utility Maximization, Least Cost Combination. Solving a Nonlinear Program via the Kuhn-Tucker Conditions.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Chiang A.C. (1990) *Fundamental Methods of Mathematical Economics* (Latest Edition) McGraw Hill
- Dowling, E. T. (2007) *Theory and Problems of Introduction to Mathematical Economics* (Latest Edition) McGraw-Hill, New York.
- Hoffman, L. D., & Bradley, G. L. (1990) *Calculus for business, economics, and the social and life sciences* (Latest edition) McGraw-Hill.
- Jean, W. E. (1998) *Mathematical Analysis, Business and Economic Application* (Latest edition).
- Bradley, T. (2004) *Essential mathematics for economics and business* (Latest edition). John Wiley & Sons.
- Kolman, B., & Beck, R. E. (1995). *Elementary linear programming with applications*. Academic Press.

- Sydsæter, K., Hammond, P. (2004) *Essential Mathematics for Economic Analysis* (Latest edition). Pearson Education Limited, England.

Course Code: ECON-308
Title: Monetary Economics
Credit Hours: 03
Prerequisite: Intermediate Macroeconomics

Course Introduction:

This course is intended to provide the students a thorough understanding of monetary theory, financial markets, importance of money and interest rates along with the conduct of monetary policy in closed and open economy. This course also introduces the alternative monetary policy stances. In addition, this includes the discussion of monetarists' and Keynesian views regarding inflation.

Learning Outcomes:

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

1. Understand the nature and function of money
2. Evaluate different policies for demand of money, determination of money supply, interest rates, inflation and output
3. Understand the classical monetary theory and neutrality of money
4. Understand the transmission mechanism of monetary policy and the monetary policy in closed and open economies in both theories and practice
5. Use the monetary policy rule (simple and optimal)

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, etc. The Evolution of Monetary Thought, Quantity Theory of money, Keynesian Tradition, Monetarism and Modern Quantity Theory, Rational Expectation Theory
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 ISLM Framework. Money in Aggregate Demand & Aggregate Supply Analysis. Keynesian Vs. Monetarist views of Equilibrium Output, Employment and Prices
Theory of 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 Intermediateries. Monetization of Public Debt. Infectiveness 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

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%

Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Bennett T. McCallum. (1989). *Monetary Economics, Theory and Policy* (Latest Edition) McMillan
- Mishkin, Frederic S. (2001). *The Economics of Money, Banking and Financial Markets*. (Sixth edition). Addison Wesley, New York. Latest edition

Additional Readings:

- Handa J. (2000). *Monetary Economics*, London: Routledge
- Laider, David E.W. (1996). *The Demand for Money: Theories, Evidence and Problems* (Fourth edition), Harper & Row, Publishers, New York.
- Miller, R. L., VanHose, D. (2001). *Money, Banking & Financial Markets*. South Western, Singapore.
- Mishkin, F. S. (1995*). Financial Markets and Money*, Harper & Row Publishers.
- Patinkin, Don. (2000). *Money, Interest and Prices* (Latest Edition) Harper and Row Publishers
- Vanish K. (2000). *Monetary Theory*. Vikas Publishing House, Delhi.

Course Code: ECON-309
Course Title: Labor Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics & Intermediate Macroeconomics

Course Introduction:

This course provides an introduction to the broad field of labor economics. Students will become familiar with models of how firms make decisions about their need for workers, how workers make labor supply decisions, and how wages are determined. Other important issues that affect the labor market such as immigration, discrimination, and unions are also discussed. Throughout the course we will investigate the effects of relevant public policies (such as minimum wage, employment subsidies, and unemployment insurance) on the labor market.

Learning Outcomes:

Students will learn:

1. the theoretical models explaining the dynamics of demand and supply of labour market.
2. The issues of wage determination and how to explain the wage differentials.

Course Contents:

Introduction	What is Labor Economics? Importance of Labor Economics
Labor Supply	Basic Concepts and Definitions: unemployment, reasons of unemployment, labor force, labor participation, etc. with special reference to Pakistan, reservation wage, unemployment benefits, safety net.
	Household labor supply model: Marginal Rate of Substitution, Constraints, solution to Worker's Optimization problem, Hours of Work Decision, Comparative Statics, Substitution Effect and Income Effect, determination of Reservation Wage, cost of working, Unemployment Benefits, Inter-temporal Labor Supply.
Labor Demand	The objective of the Firm, Labor Demand model: The Demand for Labor in the Short Run and Long Run, derived demand, Substitution and Scale Effect, Elasticity of Substitution, Elasticity of Labor Demand and its Determinants, Non-Wage Costs of Employment
Labor Market Equilibrium	Equilibrium in Competitive Labor Markets, Shifts in Demand and Supply, The Cobweb Model, Monopsonistic Labor Market, Minimum Wages in a Monopsonistic Labor Market, The Effects of Government Intervention on Equilibrium.

Education and Training	The Schooling Model, The Wage-Schooling Locus, The Stopping Rule, Signaling Model, Human Capital Model, On-the-job Training, Returns on Training with reference to Pakistan.
The Distribution of Earnings	Wages and distribution of national income, GINI coefficient, wage-share and income-share, relation between income and savings rate
Further Topics in Labor Economics	Labor Market Discrimination, Employer Discrimination, Informal Labor Market, Employee Discrimination. Wage Inequality: A Simple Model of Labor Market, Reasons for wage inequality. Immigration (domestic and international)
Trade Unions	Where and why Unions Exist? First Bargaining Structure, Leontieff's Monoploy union Model, Efficiency of Unions.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Borjas, G.J. (2009). *Labor economics*. (fifth edition) Boston, Mass.; London: Irwin/McGraw-Hill [ISBN 9780070172708].
- Briggs, V.M., A.G. & Marshall, F.R. (1980). *Labor Economics: Wages, Employment and Trade Union*. Richard D. Irwing, Inc
- Edgmand, M.R. (1979). Macroeconomic Theory and Policy, Prentice Hall.
- Ehrenberg, R.G., & Smith R.S. (1997). *Modern Labor Economics: Theory and Public Policy*. Addison-Wesley.
- Kaufman, B.E., & Hotchkiss, J.L. (2003). *Labor Market Economics*. Cengage Learning
- Lloyd Reynolds, Labor Economics and Labor Relations.
- Mc Connell, C-R., Bruce, S.L., & Macpherson, D.A. (2003). *Contemporary Labor Economics*. MCgraw-Hill.
- Smith Stephen (2003). *Labour Economics*, Routledge Publishers.

Course Code: ECON-310

Title: Urban Economics
Credit Hours: 03

Course Introduction:

The discipline of urban economics is defined by the intersection of geography and economics. Economics explores the choices people make when resources are limited. Households make choices to maximize their utility while firms maximize their profit. Geographers study how things are arranged across space. Urban economics puts economics and geography together, exploring the location choices of utility-maximizing households and profit-maximizing firms. Urban economics also explores the causes and consequences of urban problems such as congestion, pollution, and crime and evaluates alternative policy responses to these problems. Also, urban economics explores the efficiency and distributional effects of the policies of local governments.

Learning Outcomes:

The students should learn:

1. how urban cities are formed?
2. how do they manage resources to maximize efficiency?
3. about the problems of urban cities, such as providing education and health facilities.

Course Contents:

Introduction	What is urban economics? What is a city? Why do cities exist? The five axioms of urban economics, Trading City, Trading Cities in Urban History, Factory City,
Agglomeration Economies and Clustering	Sharing Intermediate Inputs, Self-Reinforcing Effects Cause Industry Clusters, Sharing a Labor Pool, Labor Matching, Knowledge Spillovers, Urbanization Economies, Utility and City Size, A System of Cities, Specialized and Diverse Cities,
Urban Growth	Where Do cities Develop? The Urban Labor Market, Public Policy and Equilibrium Employment, The Regional Context of Urban Growth, Consumer Cities and Central Place Theory.
Land Rent and Manufacturing Land	Introduction to Land Rent, Bid-Rent Curves for the Manufacturing Sector, Bid-Rent Curves for the Information Sector, Offi ce Bid-Rent Curves with Factor Substitution, Housing Prices, The Residential Bid-Rent Curve.
Spatial Distribution of Employment and Residence	The Spatial Distribution of Population, The Rise of the Monocentric City, The Demise of the Monocentric City, Urban Sprawl, The Monocentric Model and Applications.

Neighborhood and Land Use Policy	Diversity versus Segregation, Sorting for Local Public Goods, Neighborhood Externalities, Neighborhood Choice, Racial Segregation, The Consequences of Segregation, Land-Use Zoning, Growth Control: Urban Growth Boundaries
Urban Public Transit and Local Government	Autos and Highways, Congestion Externalities, The Congestion Tax, Practicalities of the Congestion Tax, Alternatives to a Congestion Tax, Commuting and Transit Ridership, The Cost of Travel and Modal Choice, The Efficient Volume of Ridership, Designing a Transit System, The Role of Local Government, Local Public Goods: Equilibrium versus Optimum, Natural Monopoly, Federalism and Metropolitan Government
Education and Crimes	Spending and Educational Achievement, The Education Production Function, School Inputs: The Importance of Teachers, Innovation: Charter Schools, Spending Inequalities and Public Policy, Education in Central Cities, Crime Facts, The Rational Criminal, The Equilibrium Quantity of Crime, Legal Opportunities and Education

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

O'Sullivan, Arthur (2019). *Urban Economics*. 9th Edition, NY, McGraw Hill Education
- Bluestone, B., Stevenson, M. H., Williams, R. (2008). *The Urban Experience: Economics, Society and Public Policy*. Oxford University Press.
- McDonald, J. F., McMillan, D. P. (2011). *Urban Economics and Real Estate: Theory and Policy.* Blackwell Publishing.
- McDonald, J. (1997) *The Fundamentals of Urban Economics*, Prentice-Hall.
- O'Flaherty, B. (2005). *City Economics.* Harvard University Press.
- Relevant material in the context of Pakistan Urban conditions should be added by the course instructor.

Course Code: ECON-311

Title: Comparative Economic System
Credit Hours: 03
Prerequisite: Principles of Microeconomics and Principles of Macroeconomics

Course Introduction:

This course aims to make graduate students familiar with the major concepts, theories, and debates in comparative economic systems. The course is aimed to maintain the students' representations of the complexity of the economy of global market. Comparative economic systems are often viewed as a divergence of traditional economics types: free and planned economies with a new type of mixed systems. The course covers many issues to compare legal systems, corporate governance, financial market, energetic systems, human capital, inequality, social policies, etc. Additional attention was paid to informal institutions (corruption and organized crime), which could be "normal" institutions in economic sense.

Learning Outcomes:

Students by the end of this course, will learn:
1. about historical debates of various economics system that existed.
2. how the current system is a mixture of various systems that existed historically.

Course Contents:

Evaluation of Economic Systems	Classification of Economic Systems, Historical Development Criteria for Evaluation of an Economic System. Basic Differences between Economic System.
Capitalism	Definition, Historical Development, Pre-Requisites of Capitalism, Competitive and Monopoly Capitalism. Economic Institutions of Capitalism. Distinction between private and Public Property and Production, Price System, Profit Maximization/Cost Minimization and Competition. Economic Decision Making under Capitalism. Evaluation of Capitalism in USA and Europe Capitalism, Market System and Environmental Problems.
Communism and Socialism	Meaning and Nature, Communism and Power to the Centre. Concepts of Ownership and Production. Various types of Communism, Marxism, Socialism, Economic Planning and Decision Making. Achievements and Failures, Communism / Socialism in USSR, China and Other parts of the World. Modern Trend and its failure, Convergence of Capitalism and Socialism. Present Status of Socialism.
Economic System of Islam	Distinctive Features, Basic Economic Values of Islam. Economic Institutions and their Role, Property Rights, Production and Distribution System. The Concept of Welfare State. Comparative Analysis: Islamic System, Capitalism and Communism.

Economic System in Pakistan	Brief Economic History of Pakistan. The Mixed Economy, Nationalization and its Impacts. Operations under Mixed Economy, Privatization and Liberalization in the 1990's and 2000's. Islamisation in Pakistan: Process and Problem, Achievements and Experience. Islamic Economics as Global System of Equity and Welfare.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Bornstein, Morris. (2005). *Comparative economic systems: Models and cases*. McGraw-Hill/Irwin.
- Carson, Richard L. (2002). *Comparative economic systems*. ME Sharpe.
- Gregory, S. (1985). *Comparative Economic Systems* Mifflin Company, Boston
- Schmeltzer, M. C., Hordyke, J. W. (1977) *Comparative Economic Systems*.
- William, L., Whitnery, W. G., *Comparative Economic System* by (latest edition)

Course Code: ECON-312

Title: Managerial Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics, Calculus-II

Course Introduction:

The main objective of this course is to make the students familiar with economic theory and tools essential to the analysis and solution of those problems that have significant economic consequences both for the firms and society at large. After taking this course a student will be able to suggest solutions to such business problems as optimization of output mix, input combination and profit maximization

Learning Outcomes:

At the end of the course, students will able to learn:

1. Application and real world managerial practice
2. Concepts will be applied in long run for efficiency of business

Course Contents:

Nature, Scope and Overview of Managerial Economics	The Nature and Scope of Managerial Economics, Firms and Managerial Objectives, The Managerial decision making process, Economic Optimization, Firms and Profits, Marginal Analysis, Theory of the firm. Profit maximization, Cost Minimization. Economic optimization.
Market Forces: Demand and Supply Analysis, Estimation and Forecasting	Demand, Supply and Equilibrium, Demand Analysis, Elasticity, use of derivative in finding elasticity of demand & supply, use of various forms of elasticity in decision making, Measuring Economic Relationships, Statistical Relations and Regression Analysis, Simple linear regression model, Multiple linear regression model estimation. Forecasting, Methods of demand forecasting. Interpretation of estimated results
Production and Cost	Theory of Production and cost, Production functions. Economies of scale and Diseconomies of scale. Optimization of multivariate functions, maxima, minima, point of inflection and their use in economic decision making.
Market Structure	Pricing decision under Perfect Competition, Monopolies, Monopolistic Competition and Oligopoly. Pricing Strategies for Firms in the short run and long run. Mark up pricing. Price Discrimination, Monoposony and Multiplant Monopoly and measuring Firms' Performance, Making Decisions under Noncompetitive Conditions. Game Theory: Pricing Strategies for Firm with Market Power.

Linear Programming	Linear Programming using Microsoft Excel solver: Ingredients of Linear Programming, Assumption etc. Application of Linear Programming. Profit Maximization problems using graphical approach. Cost Minimization problems using graphical approach. The concept of dual, duality theorem, solving primal via dual and their economic applications.
Capital Budgeting and Investment	Project appraisal/ capital budgeting, Investment Criteria and Decisions. Cash flow estimation, Net present value (NPV) Internal Rate of Return (IRR)

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Baye, M. (2000) *Managerial Economics and Business Strategy* (Sixth Edition) McGraw-Hill Irwin
- Mark, H. (2003). *Managerial Economics* (latest edition). Thomson/South- Western College Publishing.
- Peterson, C. H., Lewis, W. C., Sudhir, J. K. (2009). *Managerial Economics*, (latest Edition). Pearson Education.
- Salvatore, D. (2001). *Managerial Economics*, McGraw Hill

Course Code: ECON-313
Title: Introduction to Political Economy
Credit Hours: 03

Course Introduction:

This course is designed to provide students with an introduction to the field of positive political economy. Positive political economy seeks to understand and explain policy outcomes and political behavior. The approach taken is an interdisciplinary one that utilizes tools and concepts from economics to study politics and political behavior. The course will presume that political actors are rational and goal oriented. Political outcomes are then explained by the interaction between these actors within the (institutional) constraints of their environment.

Learning Outcomes:

Students should be able to:

1. Comprehend what is mean by political economy.
2. Understand the basic tools to understand politics and political behaviour.

Course Contents:

The Economic Way of Thinking: An Introduction	What is political economy? For that matter, what is politics? What is economics? Why is it important to study the two fields together? What are the large debates that occupy the minds of political economists? The political economy of peanuts and Pintos, Contrasting approaches: rationality, culture and psychology, Beyond cash: Thinking in terms of costs, benefits, and resources, Who seeks rent?
Rational Choice:The Economics of Human (& Pirate) Behavior	What can economists teach political scientists, if anything? Is it possible to explain human behavior and complex political phenomena based on a few simple assumptions about how people calculate costs and benefits? Why vote? Why not? A market for those with heart (two kidneys, lungs and a liver), Organizing an anarchic society: the economics of pirate democracy, Hazardous morals.
The Economics of Collective Action	This section deals with one of the central themes in political economy: collective action. How do people come together to make group decisions regarding rules and regulations within society? By studying the creation of property rights in the anarchic West of the 1800s, we will get a better understanding of the solutions to collective action problems. Related issues will include the dilemma of the commons (a sub-species of collective action problems), principal-agent theory and the importance of transaction costs.

	Public goods, public bads, common pools, and exclusive clubs, Stampede: The dilemma of the commons, Can an invisible hand have a green thumb?
Voting and Elections	Downsian electoral Competition, median-voter equilibria, probabilistic voting, efficient and inefficient electoral competition, electoral accountability, Institutions and Their Impact, Bureaucracy, Delegation, and Principal Agent Theory
Topics in the Political Economy of Pakistan	The economics of patronage, Seven pillars of good governance, The political economy of reforms, Pakistan - Dynamics of Elitist Model, Strategies for self-preservation, A military theocracy, Different regimes, Economic development, Ethnic conflict, The role of state, Emerging economic and political issues and their linkages, Regionalism, Poverty, Governance.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Leeson, P. (2009). *The Invisible Hook: The Hidden Economics of Pirates*. Princeton University Press.
- Riker, W. (1998) *Liberalism Against Populism* Waveland Press
- Shepsle, K., Bonchek, M. (1997) *Analyzing Politics: Rationality, Behavior, and Institutions* W.W. Norton
- Winter, H. (2005). *Trade-Offs: An Introduction to Economic Reasoning and Social Issues.* (2nd Edition). University of Chicago Press

Additional Reading:

- Stiglitz, J. (2016). The great divide. Penguin
- Stiglitz, J. (2016). Globalization and its discontents (new ed.). Penguin
- Latest Research articles on political economy

Course Code: ECON-314

Title: Agricultural Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics & Intermediate Macroeconomics

Course Introduction:

This course focuses on the understanding of the basic concepts of economics and their application in agriculture. We focus first on individual consumer and producer decision making, followed by market equilibrium and economic conditions. Next we discuss government intervention in agriculture followed by macroeconomic policy.

Learning Outcomes:

Students should be able to:
1. Comprehend the importance of agriculture economics.
2. Understand the basic structure and characteristics of agriculture economics.
3. Have a sense of the primary theoretical models explaining the economic conditions for agriculture.

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. Green revolution, its origin, and impact on agriculture in Pakistan.

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.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Johnston, Bruce, F & Fellir Kily. *Agricultural and Structural Transformation, Economic Strategies in late Developing Countries*.
- Khan Mahmood-ul-Hassan. (1975). *The Economics of Green Revolution in Pakistan*, New York.

- Shafi M. (1995). *Pricing of Farm Produce in Pakistan, Objectives, Practices, and Experiences*. Print Associates International, Islamabad.
- Yujiro Hayami and Vernon W. Ruttan, *Agricultural Development*, John Hopkin University Press, London. (Latest edition).
- Zaidi, S. Akbar (2005). *Issues in Pakistan's Economy*, Oxford University Press.
- Pakistan Economic Survey (various issues)

Course Code: ECON-315

Title: Human Resource Development
Credit Hours: 03
Prerequisite: Intermediate Microeconomics & Intermediate Macroeconomics

Course Introduction:

This course will help the students understand meaning and need of human resource development. It will also make them familiar with various types of human resource activities. They will also learn organizational process of human resource development.

Learning Objectives:

The students should be able to:
1. Learn about the basics of human resource and its role in an organization.
2. Understand the primary responsibilities of human resource department.
3. Learn about primary theoretical models explaining human resource development.

Course Contents:

Meaning and Need of Human Resource Development	The progression towards a field of Human Resources Development. The early training programs for semiskilled and unskilled workers. The human relations movement. The establishment of training profession. Emergence of human resources development. The relationship between human resources management and HRD training. Secondary HRM functions. Human resource development functions. Training and development, organizational development and career development. Roles and competence of an HRD professional. The HRD executive/ manager. Other HRD roles and outputs for HRD professionals. Challenges to organizations and to HRD professionals.
Formal and informal organizations involved in human resource development	Definition and purpose of needs assessment. Components of person analysis. Performance appraisal in the person analysis process. Recruitment, and selection and performance management. Management promotion and performance criteria. Rewards and compensations. Training, development and employee wellbeing. Work design basing upon employee involvement. Organization development theory and concepts. Model of planned change. The role of labor unions. Types of intervention (techno structural, sociotechnical systems and organizational change). Educational, training and social institutions.

Meaning and inter-relationship organization structure and human resource development	Introduction to organizational culture. Labor market changes and discrimination. Impact of recent immigration patterns. Adapting to demographic changes. Affirmative action programs. Cross-cultural education and training programs. Human resources development programs for culturally diverse employees. Socialization and orientation. Career development.
Meaning and Types of Human Resource Development Activities	Defining of HRD activities. Designing HRD programs. Defining objectives of HRD intervention. Scheduling and HRD programs. Training delivery methods. On the job training (OJT) methods. Job instruction training and job rotation. Class room training approach. Discussing methods and methods of Audio/Visual media. Experiential methods. Computer based training. Arranging the physical environment. Designing E-Learning material.
Organizational Processes involved in human resource development	Extent of management development activities. Approach to understand the job of managing authority. Importance of needs assessment in determining managerial competence. Executive education programs. Company designed courses. Corporate universities. On job experiences and designing effective management for development programs. Up gradation of educational technical and socio-political atmosphere.
Motivation	Multiple Intelligence Model. Two factor model of intelligence. Primary Mental abilities. Nature and Nurture Controversy. Emotional Intelligence Framework. Hygiene. Motivator factors and achievement need.
Power and Authority	Ten Myths and truths of corporate creativity. Development needs associated with the power and authority. Use of power and authority for all. The HRD executive manager and other HRD roles and outputs for HRD professionals.
Leadership	Qualities of leadership. Extent of management development activities. Describing the manager's job. Command over the hearts of all the stake holders. Management training and experiences. Company designed courses, corporate universities and on the job experiences.
Communication	Communications for the purpose of involvement and participation concept of "soft" HRM model. Communication with renewed interests and policy initiatives supported by the government. The central concept of HRD, the individual

	employee. Oriented approach. Difference between the employ participation and employed involvement.
Conflict	The concept of going on strike and lock ups. Utilization of employ participation and involvement. Damages of conflicts. Important role of the management and government.
Decision Making	Investment criterion and concept of cost drivers. Consideration of operating cost curves and planning cost curves. Consideration of internal and external market conditions. Availability of the resources and the profit margin.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Ehrenber, R. G., & Smith, R. S. (1997). *Modern labor economics: theory and public policy* (6th ed.). Addison Wesley.

- Hodson, R., Sullivan, T. A. (2012). *The Social Organization of Work* (5th edition). Cengage Learning.

- Lynton, R. P., Pareek, U.(2011). *Training for Development* (3rd edition). Kumaria Press.

- Marshall, F. R., King, A. G., & Briggs, V. M. (1980). *Labor economics: wages employment and trade unionism*. USA: Richard D. Irwin.

- Newstrom, J. W., Davis, K. (2002). *Organizational Behaviour: Human Behavior at Work* (11th edition). McGraw-Hill-Irwin.

- Perrow, C. (1971). *Organizational Analysis: A Sociological View*, Tavistock Publications Ltd.

- Peter M. Blau, Richard, W. (1962). *Formal Organizations: A Comparative Approach*, Stanf University Press.

- Reynolds, L. G. (1974). *Labor Economics and labor relations* (6th ed.). Prentice Hall.

- Weihrich, H., Koontz, H. (2004). *Management: A Global Perspective* (11th edition). McGraw-Hill, Inc.

Course Code: ECON-316

Title: Money, Banking and Financial Institutions
Credit Hours: 03

Course Introduction:

To provide students with a solid awareness about the fundamentals of banking and financial institutions.

Learning Outcomes:

Students will be:
1. Introduced to financial markets and how it intersects with economic systems.
2. Learning about the monetary policy and international finance.

Course Content:

Financial Markets and Financial institutions	Banking and financial markets? an overview of financial system, debt and equity markets, exchange and over-the counter markets, Financial Structure, debt and equity contracts, understanding interest rates, the behavior of interest rates, the risk and term structure of interest rates.
An economic analysis of financial structure	Basic facts about financial structure, financial development and economic growth, factors causing financial crises, dynamics of financial crises in emerging market economies. Economic analysis of financial regulations.
International finance and monetary policy	PICIC, IDBP, ZTBL, HBFC, NIT, SMEDA, World Bank, IMF (Brief intro and contribution to the economy), Foreign exchange market, long run and short run exchange rate behavior, comparing expected returns on domestic and foreign assets.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%

Final-Term Exam	40%

Recommended Books:

- Luckett, D. G. (1980). *Money and banking*. McGraw-Hill Companies.
- Mishkin, F. S. (1990) *The Economics of Money, Banking and Financial Institutions* (Latest Edition)

- Miller, R. L., VanHoose, D. D. (1993). *Modern money and banking*. McGraw-Hill College.

Course Code: ECON-317
Title: Economic Principles, Strategies and Techniques of Marketing
Credit Hours: 03

Course Introduction:

The course will introduce students to economic principles and their correlation with different marketing strategies. The course aims primarily at developing the student's ability to analyze marketing activity in industrial and organizational markets. The structure of the course is to build upon basic marketing principles, and reveal the interfaces of marketing philosophies and their linkage with socio-economic factors with their impact on inter-firm business functions, especially channels, sales, supply chains /value chain. In this course the learners will examine the points of retreat with consumer markets, be more managerial rather than descriptive in approach, and emphasize operational aspects.

Learning Outcomes:
Students by the end of the course should learn about:
1. Key marketing concepts and how it interrelated with supply chain management.
2. International product management and marketing techniques.

Course Contents:

Economics	Understanding fundamental economic principles and concepts that impact business operations Introduction to Contemporary Business Practices, Macroeconomics in a Global Context and World Economy.
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. Relationships & E-commerce, Managing Logistics and Supply Chain.
Strategic Marketing Planning Process	The SMP Process. The BCG Matrix, GE Nine Cell Model and Porter's Generic Strategies Models of SMP.
International Marketing: 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 wars.
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.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%

Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Boyd, H.W. (1998). *Marketing Management: Strategic Approach with a Global Orientation.* (3rd Edition)
- Burman, E. (2000). *Marketing* (4th Edition). McMillan Publishing Co.
- Etzel, Walker, Stanton. (2000) *The Fundamentals of Marketing* (11th Edition). McGraw Hill
- Kardes, Cronley & Cline. (2015). *Consumer Behavior*. South Western College, (ISBN: 978-1-133-58767-5); older editions are also acceptable.
- McCarthy, J. (1990). *Basic Marketing* (8th Edition). Prentice Hall.
- Tousley, R.D., Clark, E. (2000), *Principles of Marketing* (Latest edition)

Course Code: ECON-318
Title: Population Economics
Credit Hours: 03

Course Introduction:

This course introduces the students to the subject of demography. The course aims to educate students regarding basic demographic theories, study of demographic processes and population characteristics, demographic trends, basic methods of demographic analysis and the important demographic transitions. In the latter part of the course the focus will be on the relationship between population and issues such as urbanization, family change, population aging and health.

Learning Outcomes:

Students should be able to learn about:

1. Demography and the role it plays in the economic growth.
2. Changes in demography and urbanization

Course Contents:

Introduction	Understanding Demography, Importance of Demography, Sources of Demographic Data, Processes of Demography
Fertility	Understanding the Concept; Intercourse, Conception & Gestation Variables, Measuring Fertility, Period Measures of Fertility, Cohort Measures of Fertility, Fertility Trends, Fertility & Population Growth in Pakistan.
Mortality	Components of Mortality; Lifespan, Longevity, Causes of Death, Measuring Mortality, Differentials in Mortality, Estimates of Mortality in Pakistan.
Migration	Definition & Measurement, Causes of Migration, Internal Vs International Migration, Individual & Social Consequences of Migration, Migration Trends in Pakistan: Causes & Consequences.
Theories of Population	Mercantilist Perspective, Malthusian Theory of Population, The Marxist Perspective, John Stuart Mill, Lujo Brentano's Theory, Emile Durkheim's Perspective, The Theory of Demographic Transition, Theory of Relative Income.
Population Composition: Age & Sex Composition	Measuring the Age Composition; Measuring the Sex Composition; Impact of Population Processes on the Age Composition; Impact of Age Composition on Population Processes; the Dynamics of Age/Sex Compositions; Age-Stratification Theory

Population Growth & Ageing	Demographic Composition of the Elderly: Dynamic Scenarios, Biological & Social Aspects of Aging, Implications for the Society
Urbanization	Demographic Components of Urbanization, Internal Rural-to-Urban Migration, Impact of Population Processes, and Urbanization in Pakistan: Trends, Causes & Consequences.
Population Policy	Need of Population Policy, Influencing Population Processes, Case Studies of Pakistan.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Piggott, J., Woodland, A. (2016). *Handbook of the Economics of Population*.
- Poston D. L. & L. F. Bouvier (2010). *Population and Society: An Introduction to Demography*, Cambridge University Press, UK.
- Weeks, J. R. (1989). *Population: An Introduction to Concepts and Issues*, Wadsworth Publishing Company, USA.

Course Code: ECON-401

Title: Public Sector Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

The main objective of this course is to develop an understanding of the impact of government policies on resource allocation and equitable distribution of income. Public sector economics helps to analyze and identify the effect of public policy on various macroeconomic indicators. This course will help the students to enhance their understanding of various public policies and their effects on the economy.

Learning Outcomes:

The market mechanism that leads to efficient resource use

1. Principle of pareto efficiency and pareto improvement
2. Causes and solutions of market failures and government failures
3. Centralized and decentralized decision making to form structure of fiscal federalism
4. The criteria that should be applied when one in judging the merit of various budget policies
5. Structure of taxes, types of taxes an concept of buoyancy of tax system
6. The social, political and historical forces which have shaped the present fiscal and monetary institution' tax and expenditure measures
7. determine the formulation of contemporary fiscal and monetary policy

Course Contents:

Introduction	Introduction to public sector economics, concept of public budget, Objectives of budget, Types of budget deficit, surplus and balanced budget, Distinction between public and private expenditure, Main sources of public revenue.
Public Expenditures	Causes of public expenditure growth, Major theories of public expenditure, Wagner's Law of public expenditure, Colin Clark (Critical Limit) Hypothesis.
Market Failure	Externalities, Types of externalities- negative externality, socially optimal output, Positive externality, internalizing externalities, Coase theorem, Implications for income distribution.
Public Goods	Public goods excludable, public goods non excludable, Rivalarous and non rivalarous in consumption, Excludability and non-excludability, Concept of free rider, Asymmetric information, Adverse selection and moral hazard.

Cost Benefit Analysis	Private and social costs, Types of cost and benefits, Criterions for cost benefit analysis, Project evaluation, Concepts of NPV (Net Present Value), IRR (Internal Rate of Return) and their economic applications.
Introduction to Taxation	Desirable characteristics of a tax system, choosing among different tax system, Types of taxes- direct vs indirect taxes Tax incidence in competitive markets and without perfect competition, Equivalent Taxes, Factors affecting tax incidence.
Taxation and Economic Efficiency	Theories of taxation- The cost theory, the benefit theory, the ability to pay theory- Subjective approach, Objective approach, Progressive, Proportional and Regressive taxes, Degressive tax, specific and advalorem tax, single and multiple taxes, Impact of tax vs incidence of a tax. Specific tax incidence, Differential tax incidence, balanced budget incidence. Concept of optimal taxation.
Deficit Financing and Public Enterprises	Consequences of Government deficits, improving the budgetary process, Managerial problems of public enterprises in Pakistan, Theories of pricing in public sector enterprises- no profit no loss theory, Managerial cost of production theory, Average cost of production theory, Theory of making profit.
Policies	Social Insurance and Security, Income Distribution and Welfare Reforms State and Local Public Economics: Overview of Fiscal Policy in Pakistan.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Stiglitz E. (2001) *Economics of The public sector* (Latest Edition). W.W. Norton & Co.
- Fisher, R. C. (2006). *State and local public finance* (3rd edition.)
- Gayer, T., Rosen, H. S. (2010). *Public Finance* (0th edition)
- Govt of Pakistan, Economic Survey, yearly publication, Ministry of Finance, Economic Advisory Wing, Islamabad

- Reports of State Bank of Pakistan
- Reports of World Bank

Course Code: ECON-402
Title: Growth Theories and Models
Credit Hours: 03
Prerequisite: Advanced Macroeconomics, Development Economics-II

Course Introduction:

This course aims at developing understanding of economic growth models and theories at graduate level. The goal of this course is to comprehend the foundations and principles to make countries successful in economic terms. It focuses on both the historical experience of countries that are currently rich and are in the process of catching –up.

Learning Outcomes:

On completion students would have:

1. An enhanced knowledge of development related economic topics
2. An improved awareness of the causes, consequences and possible remedies for serious third world problem
3. An analytical appreciation of policy choices employed by developing country governments
4. Exposure to development issues and improved ability to articulate the problems in light of economic theory and empirical evidence

Course Contents:

Introduction and Overview	This section includes discussions on the facts about economic growth, differences in the level of income among countries, differences in the rate of income growth, growth before and after 19th century, the production function and the lessons from data.
Factors of Production	
Physical Capital	The nature of capital, capital's role in production, the Solow growth model, the relationship between investment and saving, and exogenous versus endogenous factors.
Population and Economic Growth	Population and output in the long-run, the Malthusian model, population growth in the Solow model, demographic transitions, future population trends, and the economic consequences of demographic change.
Human Capital	Human capital in the form of health, human capital in the form of education, modeling the interaction of health and incomes, changes in the level of education, education and variation in income across countries.
Productivity and Technology	Measuring productivity, differences in productivity and growth rates of productivity among countries, the role of Technology in growth, the nature, transfer and determinants of technology, research and

	development, patents, modeling the relationship between Technology creation and growth, barriers to technology transfers, the cutting edge technology, the industrial revolution, the technology production function, differential technological progress, efficiency, differences in efficiencies, types of inefficiencies, misallocation of factors.
Growth in the Open Economy	Autarky versus openness, Globalization, the effect of openness on economic growth, effects of geographical barriers, openness and factor accumulation, growth with capital mobility, openness and productivity, trade as a form of technology, openness and technological progress, and opposition to openness.
Fundamentals behind Economic Growth
Government	Government's role in economy, governance and rule of law, taxation, efficiency and the size of government, planning and policies, corruption and Kleptocracy, democracy and economic growth, causation from government quality to income.
Income Inequality	Facts about income equality, the Kuznets Hypothesis, effects of income inequality on the accumulation of physical and human capital, and economic growth.
Culture	The effect of culture on economic growth, openness to new ideas, hard work, saving behaviour, trust, social capital, cultural change, determinants of cooperation.
Geography, Climate and Natural Resources	Location, trade and growth, geographic concentration and spillovers, climate and productivity, climate and disease, natural resource endowment and economic growth, the curse of natural resources, incorporating natural resources into the analysis of economic growth.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.
- To read publish paper on the topics included in the course and present on one of the topics in class.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%

Final-Term Exam	40%

Recommended Books:

- Easterly. W. R. (2008). *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. The MIT Press
- Helpman, E. (2010) *The Mystery of Economic Growth* Harvard University Press.
- Jones, C. I., Vollrath, D. (2013). *Introduction to Economic Growth* (Third edition). W. W. Norton & Company.
- Weil, D, (2012). *Economic Growth* (Third Edition). Pearson Addison-Wesley.

Course Code: ECON-403

Title: Applied Economics
Credit Hours: 03
Prerequisite: Advanced Microeconomics, Advanced Macroeconomics, Mathematical
Economics-I and Econometrics-II

Course Introduction:

This course is designed for senior students having gone through theory of Macroeconomics, Microeconomics, Statistics, Mathematics and Econometrics. The important areas will be emphasized in this course are reading articles, data analysis/ estimation and writing ability. The students will also be taught how to build economic model and estimate them. The software programs such as EVIEWS, SPSS and STATA are recommended for this course. This course is enormously demanding and students will have to make efforts and hard work. Consistency and seriousness will be of paramount important for performing well in this course. At the end of the course, the students are expected to independently write a research paper on their own topic of interest.

Learning Outcomes:

Students will be leaning about:

1. the significant sources of secondary data
2. cleaning and using the data for an empirical analysis
3. various methods of creating variables, especially indexes.

Course Contents:

Review of Basic Research concepts	Defining a problem, identifying a research question, conducting literature review, building a theoretical and econometric model, defining dependent, explanatory and control variables and collection of secondary data
Introduction to Survey Analysis	Structure and methodology of surveys, Data management of survey data, cleaning the data, Important surveys in Pakistan: Pakistan Social and Living Standards Measurement (PSLM), Household Integrated Economic Survey (HIES), Multiple Indicator Cluster Survey (MICS), Labor Force Survey (LFS), Demographic and Health Survey (DHS)
Time series Database	Structure of databases, variables availability, definitions of variables, Structure of the following databases: World Development Indicators (WDI), International Financial Statistic's (IFS), Global Financial Development (GFD), Data access from State bank of Pakistan and Pakistan Bureau of Statics
Techniques for handling missing data	Types of Missing Data: Missing completely at random, Missing at Random, Missing not at random; Techniques for handling cross-section/survey missing data, Techniques for handling timeseries missing data, Imputation and multiple imputation

Methods of Index Construction	Principal Component Analysis, Exploratory factor analysis, Human Development Index method. Publication and Resources, Abstract, Introduction, Literature review, Methods and data collection, Findings and interpretation, Conclusion and suggestions, References, Introduction to journal databases like Google scholar, science direct etc., JEL Classification, Categories of Journals by HEC: W, X Y, Z, Plagiarism and similarity.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to write an empirical research paper independently.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Cameron, A. Colin, Trivedi, P. (2010) *Microeconometrics Using Stata* (Second Edition) College Station, TX: Stata Press
- Kothari, C. R (2008). *Research methodology: Methods and techniques*. New Delhi, New Age International Publishers.
- Monette D. R., Sullivan, T.J., & Dejong, C.R. (2010). Applied social research: A tool for the human services. Belmont, CA: Linda Schreiber-Ganster.
- Saunders, M. (2005). Research methods for business studies. Singapore, Pearson Education

Course Code: ECON-404

Course Title: International Trade

Credit Hours: 3

Pre-requisite(s):Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

The main objective of the course is to offer a detailed introduction to theory and practice of international trade and of trade-related policies. It focuses on analysing the gains from trade, the changing patterns of trade, the income distributional consequences of liberalizing foreign trade, and the reasons for and consequences of trade policies. The course relies predominantly on a standard collection international trade models to understand the motivations behind modern trade policies.

Learning Outcomes:

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

1. Analyze causes and effects of exchange rate variations
2. apply that knowledge to the analysis of current issues in international finance
3. Understand the policies that government may use to address internal and external imbalance
4. Demonstrate the ability to think critically and comment on current debates on international policy

Course Contents:

Introduction	Why We Study International Trade? Basis of Trade, Gains from Trade. Absolute Advantage: Adam Smith, Trade Based on Comparative Advantage: David Ricardo, Comparative Advantage and Opportunity Costs and Free Trade Equilibrium. Disagreement on Free Trade.
Modeling International Trade	The Production Frontier with Increasing Costs, Community Indifference Curves, The Marginal Rate of Substitution, Equilibrium in Isolation, The Basis for and Gains from Trade with Increasing Costs, Trade based on Differences in Tastes.
Equilibrium in Trade models	The Equilibrium-Relative Commodity Price with Trade-Partial Equilibrium Analysis, Offer Curves, General Equilibrium Analysis and Relationship Between General and Partial Equilibrium Analysis and Terms of Trade
Heckscher-Ohlin Theory	Assumption of the Theory, Factor Intensity, Factor Abundance and The Shape of Production Frontier, Factor Endowments and the

	Heckscher-Ohlin Theory. Factor price equalization. Factor Intensity Reversal
International Trade Policy	Trade as engine of growth, the terms of growth and economic development, export instability, import substitution. Tariff and small country, effect of Tariff, price and demand for imports, welfare impacts, impacts of tariff on government revenue. TOT of production and welfare. Impacts of tariff on domestic and world welfare, tariff and the large country.
Tariffs and Restrictions	Stolper-Samuelson theorem, The Optimum Tariff and retaliation, tariff and distribution of income. Import Quotas, Other Non-Tariff, Growth of factors of production, Rybczynski, growth and trade, Immiserizing Growth
Further Topics in Trade	New trade theories and economies of scale, trade based on product differentiation, measuring intra- industry trade, technology gap and product cycle model, cost of transportation and environment standard.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- International Economics: Theory and Policy by Paul R. Krugman and Maurice Obstfeld, Latest edition.
- International Economics by Donomick Salvatore, Latest edition.
- International Trade (3rd Edition) by Robert C. Feenstra and Alan M. Taylor, Worth Publishers.

Course Code: ECON-405
Title: Econometrics-II
Credit Hours: 03

Course Introduction:

This course follows up the data analysis and data estimation techniques included in Econometrics I. The major objective of this course is to enable the student for competing in a job market where positive analysis is increasingly becoming subject to highly intensive and extensive analytical formulations, largely owing to the unprecedented and remarkable development in information technology. this 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. The students have to learn certain computer packages like, E-views and Stata besides Excel.

Lab work

The students are required to devote at least two hours per week to computer laboratory. They have to attend classes to learn various Econometrics software for practical application of Econometric models they have learnt so far.

Learning Outcomes:

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

1. Research with econometrics
2. Explain econometrics concepts and results intuitively
3. Derive econometric results mathematically

Course Contents:

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).
Model Specification	Model selection criteria, Types of specification errors, Consequences of model, specification errors, Tests of specification errors, Errors of measurement, Model selection criteria, Endogeneity: where X is not fixed in repeated sampling, Nature of Endogeneity, OLS estimation in presence of Endogeneity, Detection of Endogeneity, BLUE estimator in the presence of Endogeneity, Consequences of Endogeneity in OLS estimation, Remedial measures.
Simultaneous Equation Models & Estimation Methods	Simultaneous equation models, Nature of simultaneous equations, Examples of simultaneous equation models from economic theory, Inconsistency of OLS estimators, Identification problem, Notations and definitions, Unidentified, exactly identified and over identified, Rules for identification, Simultaneous equation approaches to estimation,

	Method of indirect least squares (ILS), Method of two stage least squares (2SLS), Instrumental Variable approach to 2SLS.
Time Series Econometrics	Concept of Stationarity, Tests of Stationarity, Unit Root test, Transforming Non-stationary Time Series, ARMA and ARIMA Models, Comparison of forecast based on ARIMA and regression models, Co-integration and Error Correction Mechanism (ECM),
Autocorrelation	Autocorrelation and its causes, Time-series data and emergence of the problem with reference to economic theory, Serial Correlation, The AR (1) process, Consequences of Autocorrelation for OLS estimators, Detection of the problem and remedial measures

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course and lab work done during the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Stock H. J. and Watson M. W. (2003), Introduction to Econometrics, India: Pearson
- Education. Latest edition
- Gujrati, D. Porter, D. (2009). Basic Econometrics, McGraw-Hill Company. 5th edition
- Jeffrey M. Wooldridge J. M., (2001). Econometric Analysis of Cross Section and Panel
- Data", The MIT Press, Latest edition.
- Johnston, J. & John D. (1997). Econometric Methods. The McGraw Hill Companies, Inc,
- Singapore. Latest edition/
- Greene W. H (latest edition), Econometrics Analysis, Pearson Education, Inc.

Course Code: ECON-406

Title: Development Economics-II
Credit Hours: 03
Prerequisite: Development Economics-I

Course Introduction:

This is the second course in the development economics stream. This course will primarily deal with the major sectors in and the macroeconomics of development. A predominant portion of the course covers the essential theoretical and historical elements of development and international economics. Some specific issues currently debated in the development economics field will also be discussed.

Learning Outcomes:

1. Understand the macroeconomics of development
2. Appreciate the essential theoretical elements of development
3. Know about the current debates in the field.

Course Contents:

Agriculture and Development	Agricultural Growth: Past Progress and Current Challenges, The Structure of Agrarian Systems in the Developing World, The Important Role of Women, The Transition from Peasant Subsistence to Specialized Commercial Farming, The Economics of Sharecropping and Interlocking Factor Markets, The Transition to Mixed or Diversified Farming, From Divergence to Specialization: Modern Commercial Farming.
Industry and Development	
The Environment and Development	Environment and Development: The Basic Issues, Rural Development and the Environment: A Tale of Two Villages, Global Warming and Climate Change: Scope, Mitigation, and Adaptation, Economic Models of Environment Issues, Urban Development and the Environment, Policy Options in Developing and Developed Countries.
Trade Policies	Five Basic Questions about Trade and Development, Demand Elasticities and Export Earnings Instability, The Terms of Trade and the Prebisch-Singer Hypothesis, The Traditional Theory of International Trade (Comparative Advantage, Relative Factor Endowments and International Specialization: The Neoclassical Model, Trade Theory and Development: The Traditional Arguments), Traditional Trade Strategies for Development: Export Promotion

	versus Import Substitution, The Industrialization Strategy Approach to Export Policy.
Balance of Payments, Debt & Macroeconomic Stabilization	The Balance of Payments Account, The Issue of Payments Deficits, Accumulation of Debt and Emergence of the Debt Crisis, Attempts at Alleviation: Macroeconomic Instability, Classic IMF Stabilization Policies, and Their Critics, "Odious Debt" and Its Prevention, Resolution of 1980s–1990s Debt Crises and Continued Vulnerabilities, The Global Financial Crisis and the Developing Countries.
Foreign Finance, Investment, and Aid	The International Flow of Financial Resources, Private Foreign Direct Investment and the Multinational, Private Foreign Investment: Some Pros and Cons for Development, Private Portfolio Investment: Benefits and Risks, The Role and Growth of Remittances, Foreign Aid: The Development Assistance Debate, Conceptual and Measurement Problems, Amounts and Allocations: Public Aid, Why Donors Give Aid, Why Recipient Countries Accept Aid, The Role of Nongovernmental Organizations in Aid, The Effects of Aid.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Todaro, Michael P. and Stephen C. Smith, Economic Development, 12th Edition, Pearson 2015.
- Perkins Dwight H., Steven Radelet, and David L. Lindauer, Economics of Development, 7th Edition, New York, W. W. Norton, 2006.
- 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.
- Debraj Ray, Development Economics.

- David N. Weil, Development Economics, (Latest Edition).

Research Articles (Teach at least 2 research articles from given list or of instructor's choice)
- Kniivilä, M., 2007. Industrial development and economic growth: Implications for poverty reduction and income inequality. Industrial development for the 21st century: Sustainable development perspectives, 1(3), pp.295-333. http://132.248.45.5/cegademex/DOCS/nudesaInddevsxxi.pdf#page=303
- 3 Classical Trade Theories https://www.economicsdiscussion.net/international-trade/3-classical-trade-theories-discussed/4239
- Overseas Development Institute (1995). "Poor Country Debt: A Never Ending Story", *Briefing Paper No.1.* https://cdn.odi.org/media/documents/2650.pdf
- Foreign Aid: Good or Bad? https://www.imf.org/en/News/Articles/2015/09/28/04/53/soint090910a

Course Code: ECON-407

Title: Major Issues in Pakistan Economy
Credit Hours: 03
Prerequisite: Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

This course is designed for the students to understand composition of Pakistan Economy and its management during different government regimes. They will also learn issues related to agriculture, manufacturing, and services sectors. They will also be familiarized with various issues like unemployment, inflation, poverty, and income distribution.

Learning Outcomes:

On the completion of this course, students would be

1. Well aware of the strengths and weaknesses of different sectors of Pakistan's economy
2. Able to dram comparative analysis of Pakistan's Economy with the regional economics and evaluate where we stand

Course Contents:

Overview of Pakistan Economy	Development Experience, Approaches, Policies, and Outcomes. Identification of Issues: The era of 1950s, 1960s, 1970s, 1980s, 1990s and 2000s. Structural Change and Sources of Growth. Emergence of economic issues overtime with limited development in Pakistan.
Development Planning and Resource Mobilization	Major Targets of Develop Plans and Emerging Issues; Neglects and Successes: Mobilization of Domestic Resources; Shortages, Deficits and Role of Foreign Aid. Land Reforms and Its Impacts, the Role of Green Revolution and its Impacts: Present Status.
Agriculture and Industrial Development: Emerging Issues	Agricultural Development Policies and Priorities,Agricultural Adequacy, Agricultural Price Policy and Income Tax. Sectoral Terms of Trade. Industrial Development Policies and Strategies. Development of Large and Small Industries. Value Added: Manufacturing Goods vs. Primary Goods Production. Agriculture vs. Industry: Development Debate.
Sectoral Development, Employment Pattern and Unemployment	Sectoral Priorities and Development Issues. Human Resource Development and Emerging Issues: Population Growth, Labour Force Participation Rate and Employment Pattern, Unemployment and Underemployment, Good Governance, Social Action Plan and its Impact. Role of Institution in Development. Social Sectors development vs. High Return Sectors: Growth trade off.

International Debt and Dependency	Concepts of Foreign Aid and Debt. Borrowing vs. Domestic Reserve Mobilization (failure). Size of Foreign Debt, Debt Saving and its Impacts. Strategies to combat with High Debt: Saving Policy, Foreign Trade Promotion, Cutting non-development Expenditures, Rescheduling and its Impacts. Debt Management in Pakistan and its Impacts. Debt Modeling and Future Implications.
Poverty and Income Distribution	Pattern of Income Distribution: Rural and Urban. How to Combat Poverty: Growth Strategy, Basic Needs, Labour Intensive Investment: Education / Training etc. and Social Action Plan (SAP), its Role and Critical Review, Evasion of Policies / Strategies to Combat Poverty and Improving Income Distribution: Critical Evaluation. Neglect of Human Resource Development. Child Labour. Factors Productivity Issues.
Inflation, Foreign Trade Deficit and Emerging Issues	Sources of Inflation in Pakistan. Policies to Combat Inflation and their Impacts. Trade Performance, Instability and its Impacts. Policies to Combat Deficit and Trade Instability. WTO and its Impacts. Reforms and Further Needs. Expected Impacts of WTO and Challenges. Terms of Trade Issues, Market Access and Health Related Rates.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- S. Akbar Zaidi, (2011). Issues in Pakistan's Economy, 2nd edition. Oxford University Press.
- Shahrukh Rafi Khan. (2004). Fifty Years of Pakistan's Economy: Traditional Topics and Contemporary Concerns, Karachi: Oxford University Press.
- Mahbool ul Haq, (1989). A Profile of Poverty in Pakistan, Oxford University Press for the Centre for Human Development (MHCHD).
- Mahboob ul Haq. (1999). Human Development in South Asia: The Crisis of Governance, Karachi: Oxford University Press for the Human Development Centre.

- World Bank, World Development Reports.

Course Code: ECON-408

Title: Institutional Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics, Intermediate Macroeconomics and Development Economics-I

Course Introduction:

Almost all economic activities are moderated by formal or informal—norms, mores and conventions—institutions. At the same time, research emanating out of international financial institutions (IFIs) like the World Bank also highlight the crucial importance of sound institutions for economic growth, especially for emerging economies. Yet, there is no consensus on how to approach fundamental questions about institutions: what are institutions; from where do they come; and how do they change? In this course, we try to analyze these questions as well as look at some applied challenges like designing appropriate—efficient and fair—institutions for the global Commons.

Learning Outcomes:

By the completion of the course, students should be able to:
1. understand what institutions are
2. how they influence the economic decision making
3. primary theoretical models explaining the characteristics of institutions

Course Contents:

An Introduction to Institutional Economics:	The concept of institution: attempts at definition. Institutions and organizations. Functions of social institutions. Interaction situations and the types of norms: prisoners' dilemma-type situation; co-ordination situation; inequality situation. Enforcement characteristics. Institutional structure of a society. Formal and informal institutions. Sanctions for disobeying norms (self-enforcing sanctions, guilt, shame, informational sanctions, bilateral costly sanctions, multilateral costly sanctions). Conditions of norms' effectiveness. Interaction of formal and informal institutions. The limits of imitations of institutions from best-performing countries. The problems of their enforceability. The New Institutional Economics and modern institutionalism. Old institutional economics.
Property rights	Property rights in different legal traditions (common law and civil law traditions). The property rights approach: some basic concepts. Specification of property rights, the bundle of rights, partitioning of property rights, attenuation of property rights. Assigning of property

	rights: the internalization of externalities. The Coase Theorem. Critic of Coase (dynamic effects of alternative legal rules, wealth effect, distributional effects, strategic behavior and the problem of holding-out, endowment effect, sociological critic, unrealistic assumption about zero transaction costs). Communal property. Optimal group size. Private property. Moral and economic aspects of private property.
Contracts	The definition of a contract. Legal and economic approach to contracts. Freedom of contract. Bounded rationality and contractual incompleteness. Asymmetric information (hidden characteristics, hidden information/ hidden action, hidden intentions) and opportunistic behavior. Adverse selection and the closing of markets. Signalling, screening and self-selection. Asset plasticity and moral hazard. Principal-agent problem and agency costs. A simple principle-agent experiment in the classroom. Controlling and preventing moral hazard (controlling the agent, incentive contracts, bonding, do-it-yourself method).
The new institutional theory of the firm	Neoclassical theory of the firm. Explanations of the firm in the new institutional theory (F. Knight, R. Coase, A. Alchian and H. Demsetz, O. Williamson, O. Hart). The market and the firm. Comparative analyses of the alternative coordination forms. Internal market and influence costs. The boundaries of the firm. Ownership structure of the firm. Separation of ownership and control in the open corporation.
The new institutional theory of the state:	Social mechanisms for constraining open access. Contractual theories of the state (Locke, Rousseau), Hobbes predatory theory of the state. North's model of the state. The regulatory role of the state in the Russian economy.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Elinor Ostrom. Understanding Institutional Diversity. latest Edition, Princeton University Press.
- Marc Tool. Institutional Economics Theory, Method, Policy. Latest Edition.
- North D. (1990) Institutions, Institutional Change and Economic Performance. Cambridge University Press.
- Tullock G. Rent-seeking. (1987) In: The New Palgrave: A Dictionary of Economics. - L., Macmillan.

Recommended Research Articles:

- Wilber, C. K. and Harrison, R. S. 1978. "The Methodological Basis of Institutional Economics: Pattern Model, Storytelling, and Holism." Journal of Economic Issues 12 (March): 61 - 89.
- Rutherford, Malcolm 2001. "Institutional Economics: Then and Now." The Journal of Economic Perspectives 15.3 173-194
- Dugger, William. 1990 "The New Institutionalism: New But Not Institutionalist" Journal of Economic Issues, 24.2: 423-431
- North, Douglass 1991. "Institutions" The Journal of Economic Perspectives, 5.1: 97-112.
- North, Douglass and Barry Weingast: The Evolution of Modern Institutions of Growth. In AEN: 129-164
- Afzal, A. (2017). "What does the Glorious Revolution really tell us about Economic Institutions?" IJPEE.

Course Code: ECON-409
Title: Health Economics
Credit Hours: 03

Course Introduction:

This is a course on the economics of health and health care, with an emphasis on the Pakistan's health care system. The course examines the demand for health and health care, the nature of health care as a commodity and the behaviour and orga- nization of health care providers, health care financing and insurance, health care funding and payment of providers, innovation in health care (pharmaceuticals) and methods for evaluating health care programs and interventions, and UHC Particular attention will be given to current public policy issues for which economic analysis has potential to contribute constructively.

Learning Outcomes:

The students should be able to:
1. Understand the concept of health care systems
2. Understand the supply and demand mechanisms of health systems
3. Role of innovations in today's health system

Course Contents:

Introduction	What is health economics?, Normative issues in health economics
Demand for Health Care	The health capital model and the demand for health (includes demand for bads such as smoking or junk food, and addictions as seen by economists), Demand for health care as a derived demand. Price and in- come elasticities of demand for health care (the Rand Health Insurance Experiment).
Supply of health care	Health care professionals and institutions, their objectives and the environment in which they work (economic perspectives). Physician agency. What can we learn from geographic variations in health care utilization? What do we know about supplier- induced demand?
Third-party payers in health care	The demand for health insurance and welfare consequences of moral hazard, Competition on the health insurance market and adverse selection as a market failure. Reclassification risk (also known as premium risk) in competitive markets as another potential source of market failure, Paying health care providers (funding of health care) and insurers as statistical buyers.
Innovation and cost-control in health care	The supply of R&D in health (special emphasis on pharma- ceuticals), Evaluating innovation (methods of evaluation and technology

	assessment in health care), How much innovation do we want? The Value of Life ap- proach and equity considerations.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Jeremiah Hurley, 2010, Health Economics,
- Sherman Folland, Allen Goodman and Miron Stano, The Economics of Health and Health Care, several editions.
- Hurley's textbook Health Economics
- Feldstein, Paul J. 2011. Health Care Economics, 7th Edition. Cengage Learning.
- Henderson, James W. 2014. Health Economics and Policy, 6th Edition. Cengage Learning.
- Feldstein, Paul J. 2011. Health Policy Issues: An Economic Perspective, 5th Edition.
- Bodenheimer, Thomas, and Kevin Grumbach. 2012. Understanding Health Policy: A Clinical Approach, 6th Edition. McGraw Hill Lange.

Course Code: ECON-410

Title: Project Appraisal and Investment Analysis
Credit Hours: 03
Prerequisite: Public Sector Economics

Course Introduction:

This course aims to cover the working of public sector, that is, how the projects are evaluated, how do governments decide which project is worth spending on. In addition, how do governments arrange finances and conduct investment analysis.

Learning Outcomes:

At the end of this course, students will be able to

1. Analyze different phases of project cycles
2. Critically evaluate various aspects of agriculture projects
3. Evaluate different types of projects on the basis of discounted measures

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.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Hughes, A., & D.J. Storey. (1994). Finance and The Small Firm" (Ed) Routledge, London.
- Bruno Solmik. (1996). International Investment, Addison Wesley.
- Burno Solnik. (1996). International Investments" 3rd Ed. Addison, Wesley publishing Co.
- Donald, E., Fischer, Arnold, J. (1997). Security Analysis and Portfolio Management. Prentice Hall, Delhi.

Course Code: ECON-411

Title: Environmental and Natural Resource Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics, Intermediate Macroeconomics, Development Economics-I

Course Introduction:

According to Global Climate Risk Index (2019), Pakistan was the eighth most-affected country by extreme weather events for the period 1998-2017. At the same time, Pakistan's environment and natural resources are facing a lot of pressure from the country's significant population growth. Linkages between climate change, the ecology, natural resources and economic growth necessitate a careful analysis of how humans utilize natural resources—drawn from the ecological system—for economic production so that the rate of climate change can be mitigated, while also ensuring the conservation of the ecology as well as natural resources. This course will focus on using an economic perspective to carefully analyze the mentioned linkages. Some topics that will be covered include: climate change, resource and pollution management models, sustainable development and economic growth. Students will also be required to develop the expertise of conducting benefit/cost analysis using various methods, including Net Present Value (NPV).

Learning Outcomes:

By the completion of the course, students should be able to:

1. what are the market failures where government have to intervene and play their roles.
2. what are various methods of cos-benefit analysis
3. how government makes decisions regarding projects up take.

Course Contents:

Introduction	What is environmental economics; review of microeconomics and welfare economics.
Limitation of Market	Excludable and rival goods, common pool resources and public goods
The Theory of Externalities	Pareto optimality and market failure in the presence of externalities; property rights and the Coase theorem.
Valuing the Environment: Methods	Introduction: theoretical aspects, Economic valuation of the environment: Methodologies and Applications
Cost–Benefit Analysis and Other Decision Making Metrics	Framework of BCA and its applications, Divergence of Social and Private Discount Rates, Cost-Effectiveness Analysis, Impact Analysis

The Design and Implementation of Environmental Policy	Overview; Pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; selection of environmental policy instruments; implementation of environmental policy.
International Environmental Problems	Trans-boundary environmental problems; global pollution; economic significance of biodiversity; economics of climate change; trade and environment, dispute resolutions.
Natural Resource Management	Renewable resources, Non-renewable resources
Measuring the Benefits of Environmental Improvements	Non-Market values and measurement methods; risk assessment and perception. Incentive based solutions
Contemporary Issues in Environmental Economics with Reference to Pakistan	Energy crisis, Water footprints, Forests, Fisheries, Economics of Pollution
Sustainable Development	Concepts; Sustainability of Development, The Growth–Development Relationship measurement (conventional and alternative)

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Tietenberg, Tom and Lynne Lewis. Environmental and Natural Resource Economics, (11th Edition). Publisher: Pearson Addison Wesley, 2018.
- David A. Anderson. (2014). Environmental Economics and Natural Resource Management", Routledge, 4th Edition.
- Robert N. Stavins. (2005) Economics of the Environment: Selected Readings, W. W. Norton, 5th edition.

- Ian Wills. (2007). Economics and Environment; A signaling and incentive approach, 2nd edition.
- Thomas Sterner. (2003). Policy Instruments for Environmental and Natural Resource Management, Resource for the future.

Course Code: ECON-412

Title: Economic Dynamics
Credit Hours: 03
Prerequisite: Advanced Microeconomics, Advanced Macroeconomics and Calculas-II

Course Introduction:

This is an introduction to the analysis of difference and differential equations, including the solution of the simplest linear dynamic systems, the linearization of non-linear systems and the use of phase diagrams. It aims at providing necessary techniques for graduate students to analyze economic dynamics.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Learn the macroeconomic demand supply dynamics
2. Keynesian model and how it explains the changes in the various macroeconomic variables in the short run and long run and they interact with each other.

Course Contents:

Introduction	Definitions and concepts, Dynamic models, Deterministic dynamical models, Difference equations, Attractors and repellors, Nonlinear dynamical systems, Continuous models Continuous differential equations.
Demand and Supply Dynamics	The linear cobweb model, Different expectations, The Goodwin model of expectations, Nonlinear cobwebs, Ceilings and floors, Cobwebs in interrelated markets
Simple Keynesian Dynamics	The Keynesian-cross diagram, The dynamic multiplier, A dynamic model with taxes, The multiplier-accelerator model, Introduction of net exports
IS-LM dynamics	The static model, Instantaneous money market adjustment, a continuous IS-LM model A discrete version of the IS-LM model, Interest rate ceiling
Inflation-unemployment dynamics	The Phillips curve, a simple macroeconomic model of inflation, the dynamics of the simple model, Dynamic model with positive inflation, a change in the money supply A change in the natural level of unemployment.
Dynamics of the firm	Introduction, Monopoly and advertising, Advertising model: discrete version, Diffusion models, Static theory of oligopoly, Discrete dynamic model with output adjusting Instantaneously, Dynamic oligopoly with three firms, Partial-adjustment duopoly model.

Fiscal Dynamics	Budgetary concepts, Budget dynamics with no inflation and no monetary financing, Budget dynamics with inflation and money plus bond financing, Budget criteria of the Maastricht Treaty.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Shone. R. (2001). An introduction to economic dynamics. Cambridge University Press.
- Shone. R. (2002). Economic Dynamics: Phase Diagrams and their applications

Course Code: ECON-413

Course Title: International Finance
Credit Hours: 3
Pre-requisite(s): Microeconomics, Macroeconomics, International Trade

Course Introduction:

This course deals with the analysis of three important and related macroeconomics issues in open economies: exchange rates, capital flows and financial crises. The objectives of the course are two-fold: to introduce and critically evaluate the main relevant economic theories, models and empirical works in these three key areas of International Finance; and to apply these analytical tools to build an understanding of relevant economic developments and policy issues in the global markets. The basic tenets of international finance are presented through a core textbook, assigned readings and online lectures.

Lecture Outcomes:

By the completion of the course, students should be able to:

1. Understand the basic concepts of international finance, such as interest rates, exchange rates, balance of payments.
2. They should get a sense of how trade has an impact on the financial outcomes of the country.

Course Contents:

Introduction and Basic Terminology	Introduction of International Finance; International Financial Markets: The basis of the foreign exchange market; Organization of the market; Exchange rate systems (Foreign Exchange Rates (FER), Real, Nominal, and Effective Rates. Fixed and Floating exchange rates, Determinants of Foreign Exchange Rate)
Interest and Exchange Rates	Dynamic Theory of Interest and Exchange Rate, The Theory of Spot Exchange Rate Determination, Capital Flow and Speculations, Forward Exchange Market, Interest Arbitrage, Interest Parity Theory, Speculators, Hedgers and Traders, Forward Exchange Rate Policy
Balance of Payment	Purchasing Power Parity (PPP): Non-Trade Goods, Balance of Payment Effect. Test of Exchange Rate Instability. Impacts of FER. Rate Instability. BOP: Income Absorption Approach to BOP Elasticities of Exports and Imports and Impact on BOP. The Optimum Quantity of Reserves, Optimum Interest Rate. The Marshall-Larner Conditions.
	Disequilibria in balance of payments of corrective measures; Price Adjustment Mechanism; The partial equilibrium model; Price elasticities of demand for imports and exports; The J-Curve Effect

International Financial Institutions	Introduction of International Institutions, Role and Major Activities of IMF. IMF Credit Facilities. Loan Mechanism, Value of SDRs. Euro-Dollar, Dollar Exchange and Impacts. Role of IMF in BOP Support and Stabilization. WTO: GATT and Emergency of WTO. Liberalization and BOP; Special Status of Developing Countries
Risk and Return	Facts on International Capital Flow: ASEAN Crisis and Role of International Institution and Criticism. Motive for Capital Movement: Return and Risk Diversification. Why disagreement on International Movement of Labor? Welfare Impacts of Labor Movements. Factors of Production and Price Equalization Issues
Further Topics	Major Trade Rules and Their Expected Impacts on Trade, BOP 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, Blocks, Special Preference and their Impacts. Issues relating to the Contributions of International Financial Institutions and Their Evaluations.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- International Finance: Theory and Policy by Steve Suranovic, Latest Edition
- International Trade Theory and Policy by Chacholiades, Miltiades, Latest Edition
- International Economics by Donomick Salvatore, Latest edition.
- International Economics: Theory and Policy by Paul R. Krugman and Maurice Obstfeld, Latest edition.

- World Trade and Payments. An Introduction by Richard E. Caves , Jeffrey A. Frankel, Ronald W. Jones. Latest edition.

Course Code: ECON-414

Title: Development Policy
Credit Hours: 03
Prerequisite: Advanced Microeconomics, Advanced Macroeconomics and Development Economics-I

Course Introduction:

The aim of this course is to introduce students to some of the impediments faced by development policy makers and how they can potentially be addressed. The course begins by examining the question of why some countries are rich and others poor which would provide the basis of addressing the central policy challenges. The course further identifies the main development challenges confronting policy makers in the contemporary world with emphasis on poverty and inequality, human capital development, social protection, environment and climate urbanization and rural-urban migration and finance and fiscal development.

Learning Outcomes:

By the completion of the course, students should be able to:

1. connect the development economic topics that they studies with policy making and how those policies are evaluated.
2. Understand the hiccups and problems faced in policy making and its implementations in various sectors.

Course Contents

Institutions, Poverty and Inequality	• Dougglass C. North. The role of Institutions in Economic Development, Discussion Paper Series No. 2003.2, October 2003 • Daron Accemonglu and James Robinson, Why Nations Fail: The Origins of Power, Prosperity and Poverty, Profile Books London, 2012, Chapter 3, 13 and 15 • Banerjee, Abhijit. "Big Answers for Big Questions: The Presumption of Growth Policy." Paper for the Brookings conference on "What Works in Development? Thinking Big and Thinking Small." (2008).
Human Capital: Education and Health	• Case, Anne "The primacy of Education" Chapter 18 in *Understanding Poverty*, A. Banerjee, R. Benabou, D. Mookherjee (eds.), pp. 269-284, Oxford University Press (2005) • Andrabi, T, Das, J and Asim A. Khwaja "Education Policy in Pakistan: A Framework for Reform" (2010) • Connecting the Dots, Strategy Note 2016-2021, HIV, Health and Development UNDP • Nishtar, Sania 2010. "Health Systems in Pakistan" chapter 2 in Choked Pipes: Reforming Pakistan's Mixed Health Systems. Karachi, Oxford University Press,

	• Nishtar, Sania 2010. "Reform within the Healthcare System" chapter 11 in Choked Pipes: Reforming Pakistan's Mixed Health Systems. Karachi, Oxford University Press,
Social Protecti on	• Gazdar, H. (2014). 'Political Economy of Reform: social protection reform in Pakistan' in Development and Welfare Policy in South Asia (ed.) Gabriele Koehler and Deepta Chopra • Khatak, S. G. (2013). 'Social Protection: Extending Exclusion or Ending Exclusion' in Anita M. Weiss and Saba Gul Khattak (ed.). Development Challenges Confronting Pakistan. Boulder, Kumarian Press. • Graduation Strategies for Safety Net Beneficiaries", R.G. Hermosillo and Asad Sayeed. 2010
The Environ ment and Climate: Basic issues and Policy options in develop ing countrie s	• Fifth Assessment Report, Climate Change 2014: Impacts, Adaptation, and Vulnerability, Summary for Policy Makers, Working Group II Contribution to the of the Intergovernmental Panel on Climate Change (IPCC), 2014 • Ghazanfar, M. (2009). Environmental Case of Sindh. Lahore Journal of Policy Studies 3(1). • Akmal Hussain, Pakistan's Water Crsis, The Express Tribune, Karachi, 16 August 2011: http://tribune.com.pk/story/231905/pakistans-water-crisis/ • Ahmed, Mansoor, Water – Pakistan's most critical challenge, The Dawn News, 26 April 2016 : http://www.dawn.com/news/1254171 • Connecting the Drops, An Indus Basin Roadmap for Cross-Border Water Research, Data Sharing, and Policy Coordination, Indus Basin Working Group, Stimson Centre, 2013
Urbanisa tion and Rural – Urban Migratio n	• Kundu, Amitabh, Urbanisation and Migration: An Analysis of Trend, Pattern and Policies in Asia, Human Development Research Paper 2009/16 • Tacoli, C, MacGranahan, G, Satterthwaite, D, World Migration Report 2015, Urbanisation, Rural – Urban Migration and Urban Poverty, Human Settlements Group, International Institute for Environment and Development, International Organisation for Migration
Finance and Fiscal Policy for Develop ment	• Abed, GeorgeT., Liam Ebrill, Sanjeev Gupta, Benedict Clements, Ronald MMorran, Anthony Pellecchio, Jerald Schiff, and Marijn Verhoeven, 1998, *Fiscal Reforms in Low-Income Countries:* • *Experience Under IMF-Supported Programs, IMF Occasional Paper No. 160* (Washington: International Monetary Fund) • *Independent Evaluation Office*, 2003, *"Evaluation Report: Fiscal Adjustment in IMF-Supported Programs"* (Washington: International Monetary Fund); http://www.imf.org/External/NP/ieo/2003/fis/index.htm

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to write a research report and present it in class.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Course Code: ECON-415

Title: Experimental and Behavioral Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics

Course Introduction:

Given the recent growth of interest in behavioral considerations, experiments are increasingly used in economics to study human behavior. Behavioral economists study models of human decision making and the interaction among such decision makers in games and markets. As behavioral economists aspire to construct "realistic" models, many of the models are inspired by Psychological and experimental studies. Students will also learn how to design experiments and interpret their results and will also overview some of the most important existing results.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Understand the concept of experimental economics and its pros and cons over other empirical analysis.
2. Learn how behavioural economics is different from mainstream economics and the way.

Course Contents:

Why Experiments?	Brief history of experimental economics, experimental methods: advantages and disadvantages, some procedural and design considerations.
Game Theory	Extensive Form Games, solution by backwards induction, Strategies Normal Form Games, Dominance, Nash Equilibrium, Dominance Solvable Games.
Individual Preferences: Time and Risk	Lottery choice experiments, financial incentives and control for wealth, preference elicitations: problems and application, preference reversals, inducing risk preferences, information processing: Bayes Rule and Biases. • Holt, C. and S. Laury (2002), "Risk Aversion and Incentive Effects," American Economic Review, 92(5), 1644-1655.
Dictator and Ultimatum Games	Ultimatum Game and Dictator game: basic results, Methdological variables, demographic variables culture. What is altruism and Fairness? Dictator Game and Altruism. Testing theories of altruism via Dictator and Prisoners' Dilemma game experiments; internal versus external validity.

Trust Games	Trust game: basic results, pure and impure altruism, trustworthiness vs. altruism and fairness, a complex omnibus game, multistage trust game, gift exchange in experimental labor market, inequality0aversion theories, fairness equilibrium, extensive-form fairness equilibrium.
Coordination and public goods contribution	Public Good Game: theory and Practices, Free Riding and Voluntary Contribution Dilemma, Factors to Alleviate Free Riding, matching games, asymmetric players (Battle of Sexes: outside communication, evolution of meaning, external assignment), market entry games.
Bargaining and Auctions	Unstructured bargaining without side payments, bargaining over an externality, structured bargaining, auctions with fixed supply, first-price auctions with fixed supply.
Gender differences and Experimental Economics	- Dolan, Kathleen, and Kira Sanbonmatsu. "Candidate gender and experimental political science." *Cambridge handbook of experimental political science* 289 (2011). - Bellemare, Charles, Patrick Lepage, and Bruce Shearer. "Peer pressure, incentives, and gender: An experimental analysis of motivation in the workplace." Labour Economics 17.1 (2010): 276-283. - Chattopadhyay, Raghabendra, and Esther Duflo. "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India." Econometrica 72, no. 5 (2004): 1409-1443.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each groups of students to do a project designing their own research question and relevant experiement.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Camerer, Colin F. Behavioral game theory: Experiments in strategic interaction. Princeton university press, 2011.
- Davis, Douglas D., and Charles A. Holt. Experimental economics. Princeton university press, 1993.
- Durlauf and Blume. Behavioral and Experimental Economics. Latest Edition.
- Falk and Gachter. Experimental Labor market. Latest Edition.
- Gerber, Alan and Donald Green. (2012). Field Experiments. W. W. Norton & Company

Course Code: ECON-416

Title: Gender Analysis in Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

This course explores the gender dimensions of economic life in developing countries and how these can be examined in economic data analysis and policy research. It draws on the rich body of research of gender-aware economics and includes: household economics, paid and unpaid work, labor markets, entrepreneurship, migration, agriculture, trade and gender-responsive budgeting. The treatment of these gender-related topics include a feminist economics perspective and focus on its application in developing countries and in the process of economic development.

Learning Outcomes:

By the completion of the course, students should be able:

1. understand the concept of gender and what it means in general.
2. how the gender dimensions and lens change the outlook of all the economics outcomes.
3. how to measure the unpaid care work and what methodologies are used to value them.

Course Contents

What is Gender in Economic Analysis?	Subject and methods of gender economics. Gender statistics. System of gender inequality factors, Institutionalization of gender economic studies. Methods of gender economics. Inter-disciplinary approach in gender studies. Macro- and micro- level of studies, General principles of and requirements for data collection in the framework of an integrated system of gender state statistics, the development factor, discrimination and behavioural factors, Gender order, Gender gap in access to resources and control over economic resources. Gender risk groups.
Economic Growth and Gender Equality	Impact of economic growth on gender (in-)equality. Impact of gender equality on economic growth and socio-economic development. Core principles of feminist economics and its relevance for macroeconomics, Understanding the economy as a gendered structure (concepts and data), Analyzing multiple linkages between macro-economic policies and gender inequalities, Concept of the "Feminisation of Poverty". Basic causes of the feminisation of poverty. Problems of measuring the feminisation of poverty. Macro-level and micro-level measurement of the feminisation of poverty. Life cycle

	and gender differences in incomes. Women's contribution to GDP. Estimation of women's unpaid work (GDP satellite accounts).
Gender Inequality in The Labor Market	Economics of the labor market, Inequality in the labour market: entry into and exit from the labour market, careers, wages, skills training. Inequality and discrimination. Types of segregation. Measurement of segregation. Models of gender inequality and gender discrimination in the labour market. Factors in wage disparities, role of culture, norms and identitiy.
The Gender Factor In Household Economics	Household economics: theoretical concepts and gender critique. Gender critique of the neo-Marxist approach. The gender contract, negotiation models within families. Household time budgets: structure, and problem of measurement. Distribution of time: work in the labour market, work in the household, leisure time, Unpaid work and care work, Distribution of incomes (expenditures) in the household: inter-generational and gender aspect. Model of investment in human capital. Function of production of human capital. Investments in human capital at household level and the sex factor. Accumulation of human capital over a life cycle. Household factors (reproductive, productive, structural, income-based, power-related) and employment of household members. Marital and age-dependent models of female and male employment.
Measuring and Valuing Unpaid Domestic and Care Work	What is unpaid domestic and care work? What is unpaid domestic and care work? Time Use Surveys, Descriptive statistics related to unpaid and care work, Policies targeting unpaid domestic work and care work.
Gender Policy and Gender inequality indicators	Incorporation of gender policy elements into socio-demographic policies in various countries. Main gender issues in socio-economic development in developed countries, developing countries and CIS countries. Regional particularities of gender policy. Gender issues in the Millennium Development Goals. Indicators of gender differences in socio-economic development. Incorporation of the gender factor into the Human Development Index, Gender Equality Indices.
Gender Budgets	The government budget, Definition of gender responsive budgeting (GRB), Tools for integrating a gender perspective into different levels of the budget, Gender analysis of different

	components of the budget (Public Expenditure and Taxation), Methodology of gender budget preparation. Approaches and principles of gender budgeting. Experiences of different countries in gender budgeting.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Beneria, L2003. Gender, Development and Globalisation. Economics As If All People Mattered. New York: Routledge
- Jacobsen, J 2007. The Economics of Gender. Cambridge:Wiley Blackwell.
- Rai, S. and G. Waylen (eds). 2014. New Frontiers in Feminist Political Economy. London. Routledge.

Recommended Research Articles:

- Kabeer, N. (1994) Reversed realities: gender hierarchies in development thought, London: Verso
- Kabeer, N. (2012) Women's economic empowerment and inclusive growth: labor markets and enterprise development
- Macdonald, M. (1995) Feminist Economics: From Theory to Research, The Canadian Journal of Economics, 28(1), 159-176.
- Chant, S. (2007) Gender Generation and Poverty: exploring the 'feminization of poverty in Africa, Asia and Latin America.

Course Code: ECON-417

Title: Poverty and Income Distribution
Credit Hours: 03
Prerequisite: Development Economics-I

Course Introduction:

The aim of this course is to introduce students to the subject of poverty and inequality. The emphasis will be on problems in the modern contemporary economy, but the topic will also be approached from an historical perspective, taking a longer term view of the distribution of income in human societies. In particular, we will examine why some individuals and groups have less access to resources and income than others. Students will learn the fundamental concepts, theories and methodologies that are used by economists to measure and understand questions related to the distribution of income. By the end of the course, students should expect to not only have a greater knowledge of the forces determining the extent of poverty and the distribution of income, but to have also gained some understanding of the methods used by economists and policy-makers to deal with them.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Learn traditional and contemporary measures of poverty and income inequality.
2. Learn about Pakistan's income inequality profile.

Course Contents:

Traditional Measures of Poverty	What Is Poverty and Why Measure It? The Concepts of Well-Being and Poverty, Measuring Poverty, steps in Measuring Poverty, monetary poverty, capability approach, Poverty Lines, Relative Poverty, Absolute Poverty, Issues in Choosing an Absolute Poverty Line, Measures of Poverty, Headcount Index, Poverty Gap Index, Squared Poverty Gap (Poverty Severity) Index,
New Dimensions of Poverty	Multidimensional Poverty Index, Sen Index, The Sen-Shorrocks-Thon Index, FGT class of measures, multidimensional poverty index, Poverty Indexes: Checking for Robustness, Sampling Error, Measurement Error, Equivalence Scales, Choice of Poverty Line and Poverty Measure
Measuring Income Inequality	Definition of Inequality, Measures of Inequality, Decile Dispersion Ratio, Gini Coefficient of Inequality, Generalized Entropy Measures, Atkinson's Inequality Measures, Inequality Comparisons, Measuring Pro-Poor Growth, Decomposition of Income Inequality, Poverty Profiles, Additive Poverty Measures, Determinants of Poverty, Household and Individual-Level Characteristics, Analyzing the Determinants of Poverty: Regression Techniques, Poverty Reduction

	Policies, The Analysis of Poverty over Time, Vulnerability to Poverty, Quantifying Vulnerability to Poverty.
Poverty and Income Inequality in Pakistan	Poverty and inequality in Pakistan- How does Pakistan compare? Historical Trends- the longer term picture

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Atkinson, A. B., B. Cantillon, E. Marlier and B. Nolan (2002). *Social Indicators. The EU and Social Inclusion*. Oxford: Oxford University Press.
- Cowell, F. (1992). *Measuring Inequality* (2nd Edition). Hemel Hempstead: Harvester Wheatsheaf.
- Fields, G. S. (2001). *Distribution and Development*. Cambridge, MA: MIT Press.
- Foster, J. E., J. Greer and E. Thorbecke (1984). *A class of decomposable poverty measures*. Econometrica, 52(3), 761-66.
- Jonathan Haughton and Shahidur Khandker (2009). *Handbook on Poverty and Inequality*. (World Bank Training Series). ISBN-10: 0821376136.
- Kakwani, N. (2003). *Issues in Setting Absolute Poverty Lines. Poverty and Social Development* Paper 3. Asian Development Bank.
- Ravallion, M. (1994). *Poverty Comparisons* Harwood Academic Publishers.
- Sachs, Jeffrey. (2005). *End of Poverty: Economic Possibilities for our Time* (New York, Penquin).
- Sen, A. (2002). *On Economic Inequality*. New Delhi: Oxford University Press.
- Shorrocks, A., & Hoeven, R.V.D. (Eds.) (2005). *Growth, Inequality, and Poverty: Prospects for economic development.* New York: Oxford University Press.

Course Code: ECON-418
Title: Energy Economics
Credit Hours: 03
Prerequisite: Intermediate Macroeconomics

Course Introduction:

The main focus of the course is to study economic relationships in energy production, consumption, demand and supply, pricing and conservation, energy policy and the development of new and renewable energy sources. The aim of the course is to provide students with the opportunity to study and develop a broader understanding of the economics of energy. There is mounting evidence that the current global energy system has been growing far beyond what is globally sustainable and already poses a serious, and potentially irreversible, threat to global environmental quality and stability in future decades.

Learning Outcomes:

By the completion of the course, students should be able to learn:

1. How energy production, demand and supply side are dealt with
2. What are various energy producing sources and what are the benefits and problems of each?
3. The overview of industries involved in energy production.

Course Contents:

Overview and Fundamental Concepts	Energy in the Economy; Global Energy Problems and Issues, Fundamental Concepts: Energy, Power; Measuring energy: units and conversion factors, Laws of Thermodynamics, 1st Law and Entropy law, Input and output energy, energy efficiency, Energy conversions (technologies), Global Energy system sustainability issues, Energy markets and energy prices; competitive market valuation and social valuation, Market Failures: Market power (monopoly, oligopoly, and cartels), Externalities, Public goods and common property resources.
Oil Resources and Economic Issues	Discounted cash flow analysis, reserve and resources, resource substation, forecasting prices and speculation, Natural resource (oil) demand and supply, OPEC
Overview of Energy Economics and Global Energy Sustainability	Primary energy supply, secondary energy and energy end use demand/consumption, Energy, economic activity, and growth: energy intensity, global energy use forecasts, Energy conversion, energy transportation and/or transmission, and clean energy use, Conditions for a sustainable global energy system, climate change and clean energy

Clean Energy Supply from Non-Conventional, Alternative and Renewable sources	Climate change and primary and secondary energy use, Energy Conservation policies, demand side management, Non-conventional and renewable alternative energy: Solar, Biomass, Wind, Geothermal, Tidal & other, Hydrogen energy, fuel cells
Energy Supply from Non-Renewable Fossil Fuel Resources	Fossil fuel resources and reserves model, Cartel models of global energy markets, Overview of Oil, Natural gas, and Coal industries, Backstop technologies and Non-renewable Resource Pricing (Hotelling model), Clean fossil fuel use; carbon sequestration
Energy Conversion and Supply by Electric Utility Industries	Electric Power demand and load duration vs. Electric energy consumption, time-of-use, Electricity production technologies and electricity production cost trade-offs, Thermal, hydro, nuclear and renewables production and transmission of electricity, Electricity pricing issues, regulation and deregulation issues, Nuclear energy issues and prospects
Sustainable Energy Policy	Jaccard's Sustainable Energy System in 2100, Energy Policy of Pakistan, Sustainable energy options and criteria for comparison, Sustainable Energy Policy Alternatives and Climate Change, International Policy Initiatives
China-Pakistan Economic Corridor (CPEC)	What is CPEC? Central Role and Key Areas, Energy sector projects, Project Financing, Benefits to Pakistan, Benefits to China and other Countries, Challenges

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Bhattacharyya, S. C. (2011). *Energy Economics Concepts, Issues, Markets and Governance* Springer-Verlag London Limited.
- Griffin, J. M., Steele, H. B. (1985). *Energy Economics and Policy*, Academic Press

- Jaccard, M. (2005). *Sustainable Fossil Fuels: The Unusual Suspects in the Quest for Clean and Enduring Energy*, Cambridge University Press.
- Tietenberg, T., Lewis, L. (2012). *Environmental &Natural Resource Economics* (9th Edition) Pearson Education, Inc.

Course Code: ECON-420

Title: Impact Evaluation Methods
Credit Hours: 03
Prerequisite: Intermediate Microeconomics, Intermediate Macroeconomics, Econometric I & II

Course Introduction:

The course will present an overview of major techniques for impact evaluation and an introduction to the mixed methods approach. In addition, it will be drawing from the good international practices and literature in the field. A dominant feature of empirical research in economics in the past two decades has been the "credibility revolution" in empirical research that has prioritized the generation of credible causal estimates of the impact of policies and programs (Angrist and Pischke, 2010).

Learning Outcomes:

By the completion of the course, students should be able to learn:

1. The evidence-based policy and why evaluation of the development projects really important.
2. What is inferences and the conditions required to determine causality.
3. The main evaluation methods used to examine the impact of policies and the data sets required for each.

Course Contents:

Introduction to Impact Evaluation	What is evidence-based policy making, what is impact evaluation? Impact evaluation for policy decisions, deciding whether to evaluate, cost effectiveness analysis, prospective versus retrospective analysis, efficacy and effectiveness studies, determining evaluation questions, types of evaluation questions, theories of change, the result chain, hypothesis for the evaluation, selecting performance indicator.
Evaluation questions, Causal Inference and Counterfactuals	Causal inference, estimating counterfactual, two counterfeit estimates of the counterfactual
Experimental Designs: Randomized Control Trials	Randomized assignment of the treatment, two variations in the randomized assignment, estimating impact under randomized offering, read a research article that uses randomized control trial and understand its design, the selection problem, how random assignments help in selection problem, regression analysis of experiments.

Quasi - Experimental Designs: Instrumental Variable Technique	Instrumental Variables and causality, Two-Stage Least Squares, Grouped Data and 2SLS, Asymptotic 2SLS Inference, Over-identification, Local Average Treatment Effects, IV in Randomized Trials, Fixed Effects, Random Effects
Quasi - Experimental Designs: Matching Estimation	When is matching estimation used? What are its assumptions? How does it work? Propensity score matching and its various techniques, limitation of matching methods, read papers relevant to propensity score matching and understand their application.
Quasi - Experimental Designs: Difference-in-Difference (DD)	How is DD helpful? How does it work? Limitation of DD method, read papers relevant of difference-in-difference and understand their application.
Quasi - Experimental Designs: Regression Discontinuity (RD)	How is RD helpful? How does it work? Limitation of RD method, read papers relevant to regression discontinuity and understand their application.
Operationalizing Impact Evaluation	Choosing Evaluation Method, determine if evaluation ethical? How to set up the evaluation? How to time and budget the evaluation? What kinds of Data is required? Power Calculations Sampling Strategy? Developing and testing Questionnaires, Conducting Fieldworks, Processing and Validating Data.

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- P. Gertler, S. Martinez, P. Premand, L. Rawlings, and C. Vermeersch, *Impact Evaluation in Practice,* The World Bank, 2016.
- J. Angrist and J. Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press, 2009.

Recommended Research Articles:

- Card, D. (1990) *The Impact of the Mariel Boatlift on the Miami Labor Market*.
- Cohodes, S. & Goodman, J. (2014). *Merit Aid, College Quality, and College Completion*.
- Crepon, et al. (2013). *Do labor market policies have displacement effects? Evidence from clustered randomized experiment*.
- Clampet- Lundquirt, et al. (2006) *Moving At-Risk Youth Out of High-Risk Neighborhoods: Why do Girls Fare Better than Boys?*
- Dehejia, R. H., & Wahba, S. (2002). *Propensity score-matching methods for nonexperimental causal studies.*
- Finklestein, et al. (2012) *The Oregon Health Insurance Experiment: Evidence from the First Year.*
- Madestam et al. (2013). *Do political protests matter? Evidence from the Tea Party Movement.*

Course Code: ECON-421
Title: World Economic History
Credit Hours: 03
Prerequisite: Intermediate Microeconomics and Intermediate Macroeconomics

Course Introduction:

This course surveys the history of colonial expansion from the discovery of the Americas up to the colonization of the Middle East following the end of the First World War. The course is intended to give students a chronological account of the rise of imperialism and the colonial expansion into Latin America, Asia and Africa. While emphasis is placed on social, political and economic developments within the European nations which prompted colonial expansion, the primary focus is on how the actual colonies were acquired and the subsequent changes that took place. The course attempts to provide an essential background to understanding the historical processes by which modern developed nations became developed, and how the underdeveloped "Third World" originated as part of the same historical process.

Learning Objectives:

By the completion of the course, students should be able to:

1. Learn about the economic history and how the economic systems evolved over time.

Course Contents:

Introduction	What is Economic History? What is World Economic History? Why study World Economic History
The world economy during the medieval period: The beginnings of the Great Divergence	The first Global Economy? The Sung Miracle, the Golden Age of Islam and Medieval Europe, The Plague and the beginnings of the Great Divergence.
The Discovery of the Americas to the Rise of Industrial Capital, 1492 – 1770	Introduction: Dependency Theories, The Discovery of America, The Origins of the Slave Overland Trade Routes and the Middle East, Origins of Colonial Expansion in Asia, Overview of Africa's Economy from ancient to modern.
Industrial Capitalism to Monopoly Capitalism, 1771 – 1870	The First Industrial Revolution, The Latin American Revolutions, The End of the Slave Trade, Expansions into the Middle East, The Conquest of India, Big Push industrialization.
Monopoly Capitalism to The First World War, 1870 – 1917	The Second Industrial Revolution, The Scramble for Africa, The Opium Wars and the Onslaught on East Asia, Russian Political and Economic Developments, The Japanese Response

Nationalist Thoughts, 1917 - onwards	Nationalist Thought and Indigenous Responses to the West, Origins of Nationalist Thought I, Origins of Nationalist Thought II, The Russian Revolution., Rise of East Asia, (Re)-Globalization

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- L. S. Stavrianos (1981). Global Rift: The Third World Comes of Age, (New York: William Morrow and Company.
- Allen, Robert C. (2001). Global Economic History: A Very Short Introduction (Oxford, OUP.
- Harriss, John, Janet Hunter, and Colin Lewis. (2009). The new institutional economics and third world development. Routledge.

Additional Readings:

- Arrighi, Giovanni. (1998). *Globalization and the Rise of East Asia Lessons from the Past, Prospects for the Future*. International Sociology 13(1), 59-77.
- Findlay, R., O'Rourke, K. H. (2007). *Power and plenty: trade, war, and the world economy in the second millennium. Princeton*, NJ: Princeton University Press.
- Kuhnen, Frithjof. (1987). *Causes of underdevelopment and concepts for development. An introduction to development theories*. The Journal of Institute of Development Studies, NWFP.
- Stiglitz, Joseph E. (2002). *Globalization and its Disourse Contents*. Vol. 500. New York: WW Norton.

- Stiglitz, Joseph E. (2003). *Globalization, technology, and Asian development*. Asian Development Review, 20(2) 1-18

Course Code: ECON-422

Title: General Equilibrium and Welfare Economics
Credit Hours: 03
Prerequisite: Intermediate Microeconomics

Course Introduction:

It is a fundamental microeconomics course which studies the interdependency between individual decision making and market clearing price formation. From a methodological viewpoint, the general equilibrium approach views the economy as a closed and interrelated system in which the equilibrium values of all variables are simultaneously determined. Welfare economics deals with the interaction between "positive economics" (i.e. statements of what will happen under different policies) and "normative economics" (statements about what policies should be followed). Welfare economics considers how value judgments involving interpersonal comparisons can be incorporated into the basic framework of positive economics in order to reach normative conclusions.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Learn the concept of general equilibrium of the economy
2. Understand the welfare theorems and optimal allocations

Course Contents:

Concept and History of General Equilibrium Theory	Introduction to General Equilibrium Theory, Partial and General Equilibrium: Development of the field, History of General Equilibrium Theory, Problems with Partial Equilibrium Analysis.
An elementary General Equilibrium Model: The Robinson Crusoe Economy	Centralized Allocation, Decentralized Allocation, Pareto Efficiency of the Competitive Equilibrium Allocation: First Fundamental Theorem of Welfare Economics
The Edgeworth Box	Geometry of the Edgeworth Box, Pareto Efficiency and its constituents, Consumption Efficiency, Production Efficiency, Product Mix Efficiency, Calculating an Efficient Allocation, Competitive Market solution in the Edgeworth Box, Walrasian Equilibrium
Theorems	Envelope theorem, Kakutani fixed point theorem
Integrating production and multiple consumption decisions: A 2 X 2 X 2 model	A 2 X 2 X 2 model, Proof of existence of general equilibrium, Technical Efficiency and Pareto Efficiency, Prices and Decentralization, Efficient Market Hypothesis

Welfare	First and second theorems for welfare economics, Social Justice and the Social Optimum, Markets as the solution of efficient resource allocation problem

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Allen, Robert C. (2001). *Global Economic History: A Very Short Introduction* Oxford, OUP.
- Eugene Silberberg. (1990). *The Structure of Economics: A Mathematical Analysis*,)2nd edition) New York: McGraw Hill Publishing Co.
- Harriss, John, Janet Hunter, and Colin Lewis. (2009). *The new institutional economics and third world development*. Routledge.
- James M. Henderson and Richard E. Quandt. (1971). *Microeconomic Theory: A Mathematical Approach* (2nd edition). McGraw Hill Kogakusha Ltd., Tokyo.
- Jeffrey M. Perloff. (2014). *Microeconomics*, (7th edition), Prentice Hall
- Layard, P. R. G., Walters, and A. A. (1978). *Microeconomic Theory*, McGraw Hill Book Company
- Stavrianos, L. S. (1981). *Global Rift: The Third World Comes of Age* New York: William Morrow and Company.
- Starr, Ross M. (2010). *General Equilibrium Theory: An Introduction* (2nd Edition) Cambridge University Press
- Walter Nicholson. (2005). *Microeconomic Theory: Basic Principles and Extensions* (9th edition). Thomson South-Western.

Course Code: ECON-423

Title: Regional Economics
Credit Hours: 03
Prerequisite: Calculus-II and Which Development Economics

Course Introduction:

Regional Economics is an introductory course, which will provide the students with the basic concepts related to regional economic growth and analysis. The course will also touch on the concept of sustainability and prevalent approaches to policy design in this context.

The objective of this course is to apply the methods of microeconomic analysis to gain an understanding of both why this is the case, and of the forces that shape land development and resource allocation in urbanized areas. A general objective is to improve your ability to apply microeconomic analysis. The more specific objective is to build a working understanding of the economics of urban areas: (1) economic explanations of why cities exist and where they develop and why they grow; (2) how and why urban land develops as it does; and (3) the roles of local governments in influencing the allocation of resources in urban areas. Income determination will also be an important area of study, looking at how economic growth is distributed, and the role of growth in improving household well-being.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Learn about the regional dynamics of various countries who are located geographically together
2. What are the economic benefits and costs that these countries need to be mindful of.

Course Contents:

Introduction	Economics and space, Location and Physical-metric space, Regional Growth local development, Theories of convergence and divergence
Agglomeration and Location	Agglomeration economies and transportation costs, Localization Economies and transportation cost, Market size and Transportation cost, Economies of scale and transportation cost, spatial demand, market equilibrium and firm location, Interdependency in location choices.
Accessibility and location	Accessibility and transportation cost, The location of agriculture activities: The Von Thunen model, The urban location of firms: The Alonso model, The urban location of household, Recent developments: General equilibrium model

Productive Structure and development	The different interpretations of regional growth and development, the different conceptions of space, the theories of the stages of development, Stages of development and disparities, Industrial structure and regional growth: shift share analysis, The centrality approach
Demand	Demand and Regional Growth, interregional relations, the exporter region: the export-base model, critical assessment of the model, input-output analysis, the importer region: The Harrod-Domar model, Balance of payment and local growth
Factor Endowment	Factor endowment and regional growth, regional growth and factor mobility, factor mobility specialization and well-being, absolute vs comparative advantages in regional growth
Territorial Competitiveness and Exogenous Development	The components of territorial Competitiveness, the growth-pole theory, the role of multinational companies in local development, the spatial diffusion of innovation, infrastructure and regional development, new communication technologies and regional development
Territorial Competitiveness and Endogenous Development	The endogenous sources of competitiveness: agglomeration economies, space and static efficiency, space and dynamic efficiency, the urban structure and regional development
Territorial Competitiveness and Cumulative Demand/Supply Growth	Increasing returns, Competitiveness and cumulative growth, equilibrium in condition of non-linearity, increasing returns external to the firm: the circular and cumulative causation model, increasing return internal to the firm: the new economic geography
Territorial Competitiveness and Endogenous Growth	Endogenous growth and increasing returns, the endogamous sources of growth: the knowledge stock and learning

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%

Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Armstrong, Harvey, (2000). *Regional Economics and Policy*, Black wall Publishing Company.
- Capello, R. (2007). *Regional Economics*. New York: Routledge.
- Davis H., Craig. (1990). *Regional Economics, Impact Analysis and Project Evaluation*, Amazon.com.
- Hijkamp (Editor). *Handbook of Regional and Urban Economics*, North Holland.
- Hoover, E. M., & Giarratani, F. (1999*). An introduction to Regional Economics* (3rd ed.). West Virginia: Knopf.
- Lee Roger (ed). (1997). *Geographics of Economics*, John Wiley and Sons. 106
- Mcker David L., (1970). *Regional Economics: Theory and Practice,* The Free Press, New York.
- Philip McCann, (2001). *Urban and Regional Economics*, Oxford University Press
- Richardson, H.W. (1972). *Input-Output & Regional Economics*. London: Weidenfeld and Nicolson.
- Temple, M. (1994). *Regional Economics*. Great Britain: St. Martin's Press

Mathematics and Statistics Courses

Course Code: STAT-101
Title: Elementary Statistics
Credit Hours: 03

Course Introduction:
The aim of this course is to familiarize and give students a thorough understanding of statistics particularly topics related to process of statistical solution to a problem, descriptive statistics including classification, organization and graphical presentation of data, measures of central tendency, dispersion and a survey of basic probability concepts.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Understand relevant statistics to present data.
2. Classify, organize, and present data
3. Measures of central tendency.

Course Contents
Introduction
Descriptive and inferential statistics, basic terminologies including variable and constant, population and sample, parameter and statistic. Sequence of statistical solution to a problem. Type of measurement scales: nominal, ordinal, interval and ratio. Types of data: univariate, bivariate and multivariate data, primary and secondary data, quantitative data and qualitative data, time series, cross-sectional and pooled data. The concept of significant digits and rounding off numbers; errors: biased and unbiased.

Presentation of Data
Classification and tabulation, the frequency distribution, the cumulative frequency distribution, the relative frequency distribution, The percentage frequency distribution; Graphic and diagrammatic representation: simple and multiple bar charts, pie chart, histograms and frequency curves.

Measure of Central Tendency
Types of averages for grouped and ungrouped data including arithmetic mean, weighted mean, geometric mean, harmonic mean, median, quartiles, deciles, percentiles, mode. The summary measures and box plot. Empirical relation between mean, median and mode. Advantages and limitations of mean, median and mode.

Measures of Dispersion, Skewness and Kurtosis
Absolute and relative measure of dispersion including range, quartile deviation, mean deviation, variance, standard deviation and coefficient of variation for grouped and ungrouped data. Definition and interpretation of variance and standard deviation, computation of variance and standard deviation, properties of standard deviation and variance; skewness: Karl Pearson's coefficient of skewness, Bowley's coefficient of skewness; kurtosis and chebyshev's theorem. Covariance and correlation analysis.

Basic Probability Concepts

A survey of probability concepts: classical probability, empirical concept, subjective probability. Some rules of probability: rules of addition, rules of multiplication, conditional probability, counting rules: the multiplication formula, the permutation formula, the combination formula.

Recommended Books:

- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2014). *Essentials of statistics for business and economics.* Cengage Learning.
- Johnson, R., Kuby, P. (2000) *Elementary Statistics* (Latest Edition), Thomson Brooks/COLE.
- Lind, Douglas A., Marshal, William G. and Mason, Robert D., (2015) *Statistical Techniques in Business and Economics* (16th edition). Boston: McGraw Hill, 2003.

Course Code: STAT-102
Title: Probability and Probability Distributions
Credit Hours: 03
Prerequisite: Elementary Statistics

Course Introduction:
This course is designed to equip students with higher statistical tools and their application in economic analysis.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Understand relevant statistics to present data.
2. Classify, organize, and present data
3. Measures of central tendency.

Course Contents:

Random Variables and Discrete Probability Distribution
Random variables, discrete random variable, continuous random variable, discrete probability distribution; The mean, variance and standard deviation of a probability distribution; binomial probability distribution, and its computation. Cumulative probability distributions, properties of binomial probability distribution.

Continuous Probability Distribution
Continuous probability distribution: the normal probability distribution: properties of normal distribution, Applications of the standard normal distribution, finding areas under the normal curve.

Sampling and Sampling Distributions
What is sampling? Defining population, determining sampling frame, sampling design (probability versus non-probability sampling) and appropriate sample size. Issues of precision and confidence in determining a sample size. Sampling with and without replacement, sampling and non-sampling error, sampling bias; sampling distribution of the mean; The central limit theorem; sampling distribution of differences between means; sampling distribution of sample proportion; sampling distribution of differences between proportions.

Estimation and Confidence Intervals
Point estimates and confidence intervals; estimation by confidence interval: confidence interval estimate of a population mean (known variance), confidence interval estimate of a population mean (unknown variance) confidence interval for differences of means, confidence interval for differences of means; confidence interval for population proportion, confidence interval for differences between proportions.

Hypothesis Testing
One sample test of hypothesis; one sample; one tail and two tails tests of significance; testing for a population mean with a known population standard deviation: two-tailed test, one-tailed test; P-value in hypothesis testing; testing for a population mean: large sample, population standard deviation unknown.

Chi Square Applications

Introduction; goodness-of-fit test: equal expected frequencies; goodness-of-fit test: Unequal expected frequencies; limitations of Chi square.

Analysis of Variance

Introduction, the F-distribution; comparing two population variances; ANOVA assumptions; ANOVA test; inferences about pairs of treatment means; two-way analysis of variance.

Recommended Books:

- Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2014). *Essentials of statistics for business and economics.* Cengage Learning.
- Anderson, D. R., Williams, T. A., & Sweeney, D. J. (2011). *Statistics for Business and Economics*. (12th Edition). Cengage Learning.
- Lind, Douglas A., Marshal, William G. and Mason, Robert D., (2015) *Statistical Techniques in Business and Economics* (16th edition). Boston: McGraw Hill

Course Code: CAL-111
Title: Calculus-I
Credit Hours: 03
Prerequisite: Mathematics at Secondary Level

Course Introduction:
To prepare the students with the essential tools of algebra/calculus to apply the concepts and the situations in Economics.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Understand the basics of calculus.
2. Appreciate the use of calculus in social sciences.

Course Contents
Preliminaries
Demystifying Mathematics and Mathematical Economics, Mathematics vs. Non-Mathematical Economics, Mathematical Economics versus Econometrics. Ingredients of a Mathematical Model: Variables and Economic Variables, Constants and Parameters. A Few Aspects of Logic: Proportions, Implications and Necessary and Sufficient Conditions. The Real-Number System. Use of Sets in Economics. Cartesian Coordinates.

Functions and Equations:
Functions, Domain and Range, Relations. Schultz Demand Function, Laffer Curve. Population and Consumption Functions, Quadratic Cost Function and Profit Function of a Monopoly, Quadratic Production Possibilities Frontier, Cubic Cost Functions, Rectangular Hyperbolic Functions, Population Growth using General Exponential Functions, Population Growth using Natural Exponential Functions, Equations and Identities, Definitional, Behavioral and Conditional Equations with Economic examples. Structural and Reduced Form Equations. Partial Linear Market Equilibrium and effects of Tax, shifts in Demand and supply curves. A Nonlinear Model, Numerical Solution of Two Good Case. National Income Equilibrium, extension of Induced and Autonomous Tax, Proportion of Government Expenditure.

Matrices
Matrices and Vectors, Matrix Operations. Commutative, Associative and Distributive Laws. Vector Operations, Transpose, Cofactors, Adjoint, Determinant of a Matrix, Inverse of a Matrix, Minors and Cofactors. Market Model Analysis using Matrix Inversion Method. National Income Analysis using Matrix Inversion Method. Market Model and National Income Determination using Cramer's Rule.

Homogeneous Functions
Homogeneous Functions, Homogeneity of CES Production Function, Cobb-Douglas Production Function and Returns to Scale. Expansion Path using First Order Condition. Homothetic Functions, Homotheticity of Cobb-Douglas Production Function.

Differentiation
The Need and Nature of Comparative Statics, Concept of Limit and Continuity, Rate of Change, Slope & Derivative, Differentiation Rules for Single Variable Functions: Constant Function Rule &

Power Function Rule, Sum-Difference Rule of Differentiation, Numerical Analysis of Cost Function, Product Rule of Differentiation, Quotient Rule of Differentiation, Marginal Cost, Marginal Revenue and Marginal Product Analysis. Chain Rule and Marginal Revenue Product of Labor (MRPL) Analysis.

Recommended Books:

- Budnick, F. (2005) *Applied Mathematics for Business, Economics and Social Sciences* (Latest Edition)
- Chiang A.C. (1990) *Fundamental Methods of Mathematical Economics* (Latest Edition) McGraw Hill
- Dowling, E. T. (2007) *Theory and Problems of Introduction to Mathematical Economics* (Latest Edition) McGraw-Hill, New York.
- Jean, W. E. (2000) *Mathematical Analysis, Business and Economic Application* (Latest edition), Harper and Row Publishers, New York.

Course Code: CAL-211
Title: Calculus-II
Credit Hours: 03
Prerequisite: Calculus-I

Course Introduction:
To prepare the students with the essential tools of calculus to apply the concepts and the techniques in Economics.

Learning Outcomes:

By the completion of the course, students should be able to:

1. Extend the learning of calculus from CAL-111
2. Apply calculus techniques to economics.

Course Contents
Partial & Total Differentiation
Partial Differentiation. Marginal Physical Product of Labor and Capital. Marginal Utility Functions. Money Market Analysis, Demand for Money Function Analysis using Partial Derivatives. Income Elasticity of Demand and Cross Price Elasticity of Demand using Partial Derivatives.

Second and Higher Order Derivatives. Profit Maximization Condition using Second Derivative. Young's Theorem. Partial Derivatives Application on Three Input Production Function

Differentials versus Derivatives. Point Elasticity using Differentials, Income and Price Elasticity of Demand using Differentials. Concept of Total Differentials. Savings Function and Total Differentials. Specific Utility Function and Total Differentials.

Concept of Total Derivatives. Specific Production Function with time-dependent Labor and Capital. Exponential Functions and Growth. Rules of Differentiation of Exponential and Logarithmic Functions. Optimal Timing: A Problem of Wine Storage, A Problem of Timber Cutting, A Problem of Land Purchase for Speculation.

Finding the Rate of Growth using Exponential and Logarithmic Functions. Point Elasticity. Rate of Growth of Per Capita Employment. Rate of Growth of Profit.

Optimization
Concept of Optimization: Calculus Approach to Optimization, 1st Order and 2nd Order Conditions. Average Cost Minimization Analysis. Matrix Approach to Optimization (2nd Order) Test: Hessian. Profit Maximization Analysis, Profit Maximization of Technically Related Goods, Monopolistic Firm Producing Related Goods, Firm Producing Substitute Goods. Short Run Production Function Analysis.

Optimization of More than one Choice Variable, Economic Application on Multi-product Firm, Multi-plant Firm, Price Discrimination by Monopoly, Price Discrimination by Monopsony, Input Decision of a Firm, Profit Maximization of Two-Product Firm.

Comparative-Static Aspects of Optimization, Rationale for Constrained Optimization. Finding Stationary Values using Substitution-Elimination Method. Finding Stationary Values Method of Lagrange Multiplier. Interpretation of the Lagrange Multiplier. Second Order Condition: The Bordered Hessian. Convexity and Concavity using Second Order Derivative. Economic Applications: Utility Maximization, Law of Equi-marginal Utility using Lagrangian Multiplier, Production Function Maximization, Logarithmically Transformed Production Function.

Integral Calculus

Dynamics and Integration. The Nature of Indefinite Integrals. Basic Rules of Integration. The Substitution Rule and the Rule of Integration by Parts. Economic Applications of Integrals: Finding Total Functions from Marginal Functions, Investment & Capital Formation, Utility Function. Definite Integrals. Major Properties of Definite Integral. A Definite Integral as an Area Under a Curve. Improper Integrals.

Consumer Analysis using Integrals

Applications of Definite Integrals: Consumer's Reservation Price using Differential Equations, Consumer Willingness to Pay using Integrals, Consumer Surplus using Integrals, Differential of Consumer Surplus using Integrals, Producer & Social Surplus using Integrals, Producer Surplus with Tax using Integrals.

Firm Related Microeconomic Applications of Integrals

Wine Storage Problem with Storage Costs. Breakeven Analysis of a Firm. Scale of Production Analysis. Mobile Production Analysis. Firm's Average Profit Analysis. Firm's Average Cost Analysis. Average Production Analysis. Average Inventory Analysis. Advertisement Analysis. Profit over Useful Life of Machine. Oil Extraction Analysis, Dynamics of Labour Cost.

Miscellaneous Microeconomic Applications of Integrals

Efficiency Analysis using Integrals. Cost Effectiveness Decision using Differential Equations. Depreciation Analysis using Integrals. Retirement Annuity Analysis using Integrals. Wage Differential using Integrals. Present Value of Cash Flow. Present Value of a Perpetual Flow.

Macroeconomic Applications of Integrals

Gini Index using Integrals. Depletion of Energy Resources Analysis using Integrals. Present Value of Gold Mine using Integrals. Balance of Trade Analysis using Integrals. Demand Analysis of Oil using Integrals. Demand Analysis of Oil using Integrals. Domar Growth Model: Framework, Solution and Numerical.

Recommended Books:

- Chiang A.C. (1990) *Fundamental Methods of Mathematical Economics* (Latest Edition) McGraw Hill
- Dowling, E. T. (2007) *Theory and Problems of Introduction to Mathematical Economics* (Latest Edition) McGraw-Hill, New York.
- Hoffman, L. D., & Bradley, G. L. (1990) *Calculus for business, economics, and the social and life sciences* (Latest edition) McGraw-Hill.
- Jean, W. E. (1998) *Mathematical Analysis, Business and Economic Application* (Latest edition).
- Bradley, T. (2004) *Essential mathematics for economics and business* (Latest edition). John Wiley & Sons.
- Kolman, B., & Beck, R. E. (1995). *Elementary linear programming with applications*. Academic Press.
- Sydsæter, K., Hammond, P. (2004) *Essential Mathematics for Economic Analysis* (Latest edition). Pearson Education Limited, England.

Course Code: MATH 203
Title: Matrix Algebra

Credit Hours: 03

Pre requisites

Course Introduction

This course introduces students to the methods and workings of matrix algebra. From simple matrix manipulations to computations of eigenvalues, eigenvectors, and decomposition, this course aims to provide the basics of matrix algebra useful to study advanced courses in economics, econometrics, and finance.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the methods and workings of matrix algebra
2. Undertake various computations related to matrices
3. Perform matrix algebra

Course Contents

- Systems of linear equations
- Row reduction and echelon forms
- Matrix operations, including inverses
- Block matrices
- Linear dependence and independence
- Subspaces and bases and dimensions
- Orthogonal bases and orthogonal projections
- Gram-Schmidt process
- Linear models and least-squares problems
- Determinants and their properties
- Cramer's Rule
- Eigenvalues and eigenvectors
- Diagonalization of a matrix
- Symmetric matrices
- Positive definite matrices
- Similar matrices
- Linear transformations
- Singular Value Decomposition

Teaching Methodology

- To deliver lectures on topics included in course outline

- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Strang, G. (2010) *Introduction to Linear Algebra* (5th edition). Wellesley-Cambridge Press

Course Code: MGMT 101
Title: Principles of Management

Credit Hours: 03

Pre requisites

Course Introduction

This course introduces students to the knowledge and skills required to successfully manage organizations in a modern economy. Also, the course contents are based on contemporary research and practice.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required to successfully manage organizations
2. Appreciate various management practices
3. Plan and control organization

Course Contents

Introduction and course overview

What is management and organization?

Mintzberg, H. (1996). The manager's job: Folklore and fact. Harvard Business Review, 53(4), 49.

Gibson, J. W., & Tesone, D. V. (2001). Management fads: Emergence, evolution, and implications for managers. Academy of Management Executive, 15(4), 122.

Case Study: Who's in Charge?: The Jim Davis Case.

Corporate social responsibility and ethics

Levy, M., Eskew, M., Bernotat, W., & Barner, M. (2007). Who owns the long term? Perspectives from global business leaders. Harvard Business Review 85(7- 8), 54.

Case study: On Weldon's watch: Recalls at Johnson & Johnson from 2009 to 2010

Managing in a global environment

Case study: Becton Dickinson: Worldwide blood collection team.

Managerial decision making

Buchanan, L., & O Connell, A. (2006). A brief history of decision making. Harvard Business Review, 84(1), 32.

Hammond, J.S., Keeney, R.L. and Raiffa, H. (1998). The hidden traps in decision making. Harvard Business Review, 76(5), pp.47-58.

Case study: Antegren: A beacon of hope.

Foundations of planning

> Case study: Blinds to go: Invading the sunshine state.

Organizational design and structure

> Goold, M., & Campbell, A. (2002). Do you have a well-designed organization? Harvard business review, 80(3), 117

Adaptive organizational design and structure

> Case study: Novartis Pharma: The business unit model.

> Case study: Procter & Gamble: Organization 2005 (A) Managing and the Manager's Job

Motivating and leading employees

> Goleman, D. (2017). Leadership that gets results (Harvard business review classics). Harvard Business Press.

> Case study: Leadership styles.

Control and operations management.

> Case study: GE: We Bring Good Things to Life (A)

Conclusions and course overview

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Robbins, S., Coulter, M., Sidani, D., and Jamali, D. (2014) *Management* (Arab World Edition) Pearson.
- Robbins, P. S., and Coulter, M., (2018), *Management* (Latest Edition) Essex, Pearson Education.

Course Code: MGMT 201
Title: Organizational Behavior

Credit Hours: 03

Pre requisites:

Course Introduction:

The main objective of this seminar is to expose the student to advanced theories in Organizational Behavior, and to provide students with an appreciation of the myriad approaches employed in the study of Organizational behavior phenomena. The focus of the course will be on the critical assessment of the theories, research designs, and analytical approaches employed to answer specific research questions.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand culture of an organization
2. Appreciate various management practices
3. Understand and cultivate group dynamics

Course Contents

Personality and Individual Differences

How does personality affect employee attitudes and job performance? Should organizations use personality tests to decide whether to hire job applicants?

Motivation and Rewards

Why do individuals work? How can employees be motivated to achieve higher levels of performance? Is pay an effective motivator?

Intrinsic Motivation and Job Redesign

What makes work itself motivating and rewarding? How can organizations create jobs that are meaningful to employees?

Perception, Cognition and Decision Making

How do biases arise in decision making? What happens when our attitudes are not consistent with our behaviors? How do attributions for people's behaviors influence decision making?

Well-being at Work

What impact do employee emotions and emotional intelligence have on important organizational outcomes? Why do individuals 'burn out' at work? What is emotional labor, and what are its repercussions?

Psychological Contracts

What types of relationships do organizations want with employees? Do organizations break promises to employees? Why is justice important to individuals? Is fairness equally important to all employees?

Group Dynamics and Teams

How do group norms develop in groups? Why do individuals conform to group norms? What are cohesive groups and are cohesive groups better than diverse groups?

Leadership

What is leadership? How can leaders be more effective? Is there one best leadership style? Do men and women have different leadership styles?

Power and Politics in Organizations

Why are some individuals or groups in organizations more powerful than others? Why do some supervisors abuse their power? Why are some organizations more 'political' than others, and what are the consequences of politics for individuals in the organization?

Creativity and Innovation in Organizations

What does creativity and innovation look like in organizations? How can organizations encourage creativity and innovation in their workforce?

Social Networks

What is a social network? Why it is important to be well-connected? Can groups with specific network structures perform better than others?

Culture in Organizations

How does organizational culture develop? How and why do organizations differ in their culture? How do individual and organizational culture influence behavior and performance?

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Huczynski, A. A., Buchanan, D. A. (2010) *Organization Behavior* (Latest Edition) Prentice Hall.

- Robbins, S.P., Judge, T.A. (2015). *Essentials of Organisational Behaviour* (13th Global Edition). Harlow, Essex: Pearson.
- Schein, E. H. (2012) *Organization Culture & Leadership* (Latest Edition)
- Ulrich, D., Smallwood, N. (2010) *Leadership Brand* (Latest Edition)

Course Code: MGMT 304
Title: Operations Management

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of operations management and the role manufacturing of goods or service operations play towards success and growth of an organization. Students are expected to identify and understand the cross functional relationships of operations with other areas within an organization such as marketing and finance. Practical application of some of analytical tools and quantitative techniques is done in the group project work

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required for operations management
2. Appreciate various management practices
3. Design new operations
4. Update operational designs

Course Contents

Introduction to operations management

What is operations management? Organizing to produce goods and services, Operations for goods and services,
Current challenges in OM Ethics, social responsibility and sustainability, Global view of operations and supply chains, Achieving competitive advantage through operations, Issues in Operations strategy, strategy development and implementation, Strategic planning, core competencies and outsourcing, Importance of project management, Project planning, scheduling and controlling, Overview of project management techniques, PERT, CPM, Determining the project schedule, Critique of PERT and CPM, Introduction to forecasting, Strategic importance of forecasting, Forecasting approaches: Qualitative vs. Quantitative, Forecasting in a service sector

Designing operations

Design of goods and services, Generating new products, Issues for product design, Product development continuum, Defining a product and documents for production, Service design, Quality and strategy, Defining quality and TQM, Tools of TQM, Inspection, TQM in services, Four process strategies, Process analysis and design, Considerations for service process design, Production technology, Technology in services

Managing operations

Strategic importance of Location, Factors that affect location decisions, Methods of evaluating location alternatives, Service location strategy, Importance of layout decisions, Types of layout: Office layout, Retail layout, Warehouse layout, Fixed position layout, Process oriented layout, Repetitive and product oriented layout, Supply chain's strategic importance, Sourcing issues, Sourcing strategies, Supply chain risk, Managing the integrated supply chain, Building the supply base, Logistics and distribution management, Ethics and sustainable supply chain management, importance of inventory, Managing inventory, Inventory models, Inventory models for independent demand, Planning process, Sales and operations planning, Aggregate planning strategies, Methods for aggregate planning, Aggregate planning in services

New developments in operations: ethics, environment and social responsibility

Introduction to miscellaneous concepts in operations management, Ethics and social responsibility, Eco friendly business practices and CSR

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Davis, Aquilano, Chase (2010) *Fundamentals of Operations Management* (4th Edition)
- Heizer, J., Render, B., Rajashekhar, R. (2018). *Operations Management* (12th Edition). Pearson Education
- Raturi, Evans. (2010). *Principles of Operations Management* (Latest Edition)

Course Code: MGMT 308
Title: Human Resource Management

Credit Hours: 03

Pre requisites:

Course Introduction:

This course introduces students to the functional knowledge and technical skills of HRM. One of the most important assets of a firm/organization is the quality of its human resource. HRM is the subject dealing with the art of acquiring, developing and retaining valuable human resource for accomplishing firm's mission, goals and objectives. Managers need a strong foundation in HRM concepts and techniques for achieving this task effectively and efficiently.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required to successfully manage human resources
2. deal with the art of acquiring, developing and retaining valuable human resources
3. Manage a variety of human resources

Course Contents

Introduction to HRM
Introduction, course overview and fundamentals of HRM

Motivation and Communication

Nohria, N., Groysberg, B., & Lee, L. (2008). Employee motivation: A powerful new model. Harvard Business Review, 86(7/8), 78.

Leadership and Management

Goleman, D. (2004). What makes a leader? Harvard business review, 82(1), 82-91.

Strategic HR management and Scorecard

Charan, R., Barton, D., & Carey, D. (2015). People before strategy. Harvard Business Review, 93(7/8), 62-71.

Job analysis and design

Simons, R. (2005). Designing high-performance jobs. Harvard Business Review, 83(7), 54.

Personnel planning and recruitment

Fernández-Aráoz, C., Groysberg, B., &Nohria, N. (2009). The definitive guide to recruiting in good times and bad. Harvard Business Review, 74–84.

Employee testing and selection

Groysberg, B., Nanda, A., &Nohria, N. (2004). The risky business of hiring stars. Harvard Business Review, 82(5), 92-101.

Interviewing, training and development

>Malhotra, D. (2014). 15 Rules for Negotiating a Job Offer. Harvard Business Review.

>HBS Press (2006). Employee development: helping people grow in their careers. From the Book 'Performance management: Measure and improve the performance of your employees'.

Performance management and appraisal

>Buckingham, M., & Goodall, A. (2015). Reinventing performance management. Harvard Business Review, 93(4), 40-50.

Establishing Strategic Pay Plans

>Jensen, A. (2001). Corporate budgeting is broken: Let's fix it. Harvard Business Review.

Ethics, Benefits, and Services

>Case Study: **Joe Fresh: Ethical sourcing**

Labor and Employee Relations

>Beard, A. and Hornik, R. (2011). It's hard to be good. Harvard Business Review.

Employee Safety and Health

>Case Study: **Suicides at France Telecom**

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Dessler, G., (2017), *Human Resource Management* (15th Edition). Pearson Education Limited
- Mathis, R., Jackson J. H., and Valentine, S. R. (2013), *Human Resource Management* (2nd Edition)

Course Code: MGMT 403
Title: Supply Chain Management

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of Supply Chain management and the role strategy and distribution plays towards success and growth of an organization. Students are expected to identify and understand the cross functional relationships of Supply Chain with other areas within an organization such as marketing and finance. Practical application of some of analytical tools and quantitative techniques is done in the group project work.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required to successfully manage supply chains
2. Appreciate a variety of supply chains
3. identify and understand the cross functional relationships of Supply Chains

Course Contents

Introduction to Supply Chain Management

Introduction to SCM, Supply Chain Networks, Supply Chain Networks and Supply Chain Infrastructure, Supply Chain Networks and Distribution, Logistics is not SC, Supply Chain Strategy and Logistics, Supply Chain Strategy and Product Development

Managing inventory

Supply Chain and Inventory Management, IT and ERP in Supply Chain, Postponement in Supply Chain

Distribution

Supply Chain Coordination, Strategic Sourcing, Supply Chain Alignment, Supply Chain Risk, Designing Channels of Distribution

Collaboration

Build the right collaborative model, SC Buyer and Supplier Relationships

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage

Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Cohen, S., Roussel, J. (2012) *Strategic Supply Chain Management: The Five Core Disciplines for Top Performance* (Second Edition). McGraw Hill Professional.
- Cordon, C., SundtoftHald, K., Seifert, R. W. (2016) *Strategic Supply Chain Management.* Taylor and Francis.
- de Kok, A.G., Graves, S. C. (2016) *Supply Chain Management: Design, Coordination and Operation* (Latest Edition). Elsevier
- Prater, E., Whitehead, K. (2013) *An Introduction to Supply Chain Management: A Global Supply Chain Support Perspective* (Latest Edition) Harvard Business School Publishing
- Shapiro, J., F., (2010) *Modeling the Supply Chain*, Duxbury.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi E., (2016) *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies* (Latest Edition).
- Vollmann, T.E., Berry, W.L., Whybark, D.C. and Jacobs, F.R., (2012) *Manufacturing Planning and Control for Supply Chain Management*, (Latest Edition). McGraw-Hill.

Course Code: MGMT 408
Title: Strategic Management

Credit Hours: 03

Pre requisites:

Course Introduction:

Business strategy refers to the deliberate activities through which business goals are set and implemented. The most important role of strategic planning is to differentiate the firm from its competitors in order to realize superior financial performance and returns to the owners of a business. However, it is important to realize that strategy not only shaped by the underlying environmental conditions, but also by the resources available to management. The integration of the external and internal perspectives provides the basic framework for strategic thinking. This course gives the students a holistic view of strategy formulation, implementation, and control in firms. Moreover, they will be able to think beyond day-to-day business activities of firms; analyzing the strategic threats and opportunities of firms based on firms' internal capabilities and external environments in a fast changing global environment.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required strategic management
2. Create strategic designs
3. Integrate internal and external perspectives
4. Think and plan beyond day to day activities

Course Contents

- Introduction and course overview
- Nature of Strategic Management
- Business Vision and Mission
- External Assessment (EFE)
- External Assessment (EFE)
- Intro to EFE,IFE,SWOT Matrix
- Internal Assessment(IFE)
- Internal Assessment(IFE)
- Strategies in Action
- Strategies in Action
- Strategy Analysis and choice
- Strategy analysis and choice
- Strategy analysis and choice
- Decision Making Process Implementing Strategies: Management and operation issues and Org Structure

- Implementing Strategies: Management and operation Issues.

- Implementing Strategies: Management and operation Issues.
- Strategy Review, Evaluation and control, Balanced Scorecard
- Templates of Good Governance
- Business Ethics and Moral Issues

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- David, F. R. (2015) *Strategic Management* (Latest Edition). Pearson Education.
- Wheelen, T. L., Hunger, J. D. (2013). *Strategic Management Business Policy* (13th Edition). USA: Prentice Hall, Pearson
- Dess, Lumpkin, Eisner (2007). *Strategic Management* (3rd Edition). USA: McGraw-Hill/Irwin
- Grant, R.M. (2003) *Strategic Planning in a Turbulent Environment: Evidence from the Oil Majors*. Strategic Management Journal, 24:491-517.doi: 10.1002/smj.314
- Holcomb, T.R, Holmes Jr. R. M., Connelly, B.L. (2009). *Making the most of what you have: Managerial Ability as a Source of Resource*
- Mitchell, J. R., Shepherd, D. A., Sharfman, M. P. (2010) *Erratic Strategic Decisions: When and Why Managers are inconsistent in Strategic Decision Making*. Strategic Management Journal, DOI: 10.1002/smj.905

Course Code: MGMT 412
Title: Project Management

Credit Hours: 03

Pre requisites:

Course Introduction:

This course is designed to introduce the core concepts of Project Management. Participants will be equipped with the tools, skills, behavioral attributes and the competencies needed to manage a project. Using lectures, discussions, case studies, and a hands-on team project, the participants will learn both the theory and application of concepts related to this field. The course will attempt to make the participants learn "what" to do, "how" to do it, and "why" they need to do it.

Learning Outcomes:

Upon the completion of the course, students should be able to

1. Understand the skills required for successfully completing a project
2. Create strategic designs
3. Integrate internal and external perspectives
4. Think and plan beyond day to day activities

Course Contents

Introduction

Organizational Structures and Management Functions

- Planning
- Work Break down structures, Project Selection
- Scheduling
- Network Scheduling Techniques
- PERT / CPM / Softwares
- Pricing
- Problems and comparisons
- Budgeting
- Material Accounting
- Risk Management
- Contract Management
- Quality Management
- Managing Crisis Projects
- Conflicts
- Working relationship management in projects
- Project Presentations

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Kerzner, H. (2012) *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, Wiley Publications
- Holcomb, T.R, Holmes Jr. R. M., Connelly, B.L. (2009). *Making the most of what you have: Managerial Ability as a Source of Resource*

Course Code: MGMT 414
Title: Product Management

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of Supply Chain management and the role strategy and distribution plays towards success and growth of an organization. Students are expected to identify and understand the cross functional relationships of Supply Chain with other areas within an organization such as marketing and finance. Practical application of some of analytical tools and quantitative techniques is done in the group project work.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of product management
2. Apply best practices to product life cycle
3. Implement product management theories

Course Contents

Introduction to Supply Chain Management

Introduction to SCM, Supply Chain Networks, Supply Chain Networks and Supply Chain Infrastructure, Supply Chain Networks and Distribution, Logistics is not SC, Supply Chain Strategy and Logistics, Supply Chain Strategy and Product Development

Managing inventory

Supply Chain and Inventory Management, IT and ERP in Supply Chain, Postponement in Supply Chain

Distribution

Supply Chain Coordination, Strategic Sourcing, Supply Chain Alignment, Supply Chain Risk, Designing Channels of Distribution

Collaboration

Build the right collaborative model, SC Buyer and Supplier Relationships

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage

Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Cohen, S., Roussel, J. (2012) *Strategic Supply Chain Management: The Five Core Disciplines for Top Performance* (Second Edition). McGraw Hill Professional.
- Cordon, C., SundtoftHald, K., Seifert, R. W. (2016) *Strategic Supply Chain Management.* Taylor and Francis.
- de Kok, A.G., Graves, S. C. (2016) *Supply Chain Management: Design, Coordination and Operation* (Latest Edition). Elsevier
- Prater, E., Whitehead, K. (2013) *An Introduction to Supply Chain Management: A Global Supply Chain Support Perspective* (Latest Edition) Harvard Business School Publishing
- Shapiro, J., F., (2010) *Modeling the Supply Chain*, Duxbury.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi E., (2016) *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies* (Latest Edition).
- Vollmann, T.E., Berry, W.L., Whybark, D.C. and Jacobs, F.R., (2012) *Manufacturing Planning and Control for Supply Chain Management*, (Latest Edition). McGraw-Hill.

Course Code: MGMT 305
Title: Leadership and Change Management

Credit Hours: 03

Pre requisites:

Course Introduction:

The main objective of this seminar is to expose the student to advanced theories in Leadership, and how to lead changes in an organization. An appreciation of the myriad approaches employed in this field will be developed. The focus of the course will be on the critical assessment of the theories, research designs, and analytical approaches employed to answer specific research questions.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of leadership
2. Apply best practices to lead organizations
3. appreciate myriad of approaches to leadership

Course Contents

organizational environment culture, Vision, Mission Values, and conducive working environment

What is leadership and what are the elements of leadership, taking vision, mission values of an organization forward

What is leadership and what are the elements of leadership, taking vision, mission values of an organization forward

Different leadership styles and managing people expectations, motivation, engagement, group management and interpersonal skills.

Different leadership styles and managing people expectations, motivation, engagement, group management and interpersonal skills.

Role of leadership in communication and flow of information.

Role of leadership in communication and flow of information.

Role of leadership in implementing technology in the workplace.

Role of leadership in implementing technology in the workplace.

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage

Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Huczynski, A., Buchanan, D. (2012) *Organization Behavior.* Prentice Hall.
- Schein, E. H. (2010) *Organization Culture & Leadership* (Latest Edition)

Course Code: MGMT 310
Title: Organization Theory

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of Supply Chain management and the role strategy and distribution plays towards success and growth of an organization. Students are expected to identify and understand the cross functional relationships of Supply Chain with other areas within an organization such as marketing and finance. Practical application of some of analytical tools and quantitative techniques is done in the group project work.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of organization
2. Apply best practices to real world situations

Course Contents

Introduction to Supply Chain Management

Introduction to SCM, Supply Chain Networks, Supply Chain Networks and Supply Chain Infrastructure, Supply Chain Networks and Distribution, Logistics is not SC, Supply Chain Strategy and Logistics, Supply Chain Strategy and Product Development

Managing inventory

Supply Chain and Inventory Management, IT and ERP in Supply Chain, Postponement in Supply Chain

Distribution

Supply Chain Coordination, Strategic Sourcing, Supply Chain Alignment, Supply Chain Risk, Designing Channels of Distribution

Collaboration

Build the right collaborative model, SC Buyer and Supplier Relationships

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%

Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Cohen, S., Roussel, J. (2012) *Strategic Supply Chain Management: The Five Core Disciplines for Top Performance* (Second Edition). McGraw Hill Professional.
- Cordon, C., SundtoftHald, K., Seifert, R. W. (2016) *Strategic Supply Chain Management.* Taylor and Francis.
- de Kok, A.G., Graves, S. C. (2016) *Supply Chain Management: Design, Coordination and Operation* (Latest Edition). Elsevier
- Prater, E., Whitehead, K. (2013) *An Introduction to Supply Chain Management: A Global Supply Chain Support Perspective* (Latest Edition) Harvard Business School Publishing
- Shapiro, J., F., (2010) *Modeling the Supply Chain*, Duxbury.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi E., (2016) *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies* (Latest Edition).
- Vollmann, T.E., Berry, W.L., Whybark, D.C. and Jacobs, F.R., (2012) *Manufacturing Planning and Control for Supply Chain Management*, (Latest Edition). McGraw-Hill.

Course Code: MGMT 415
Title: Entrepreneurship

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of Supply Chain management and the role strategy and distribution plays towards success and growth of an organization. Students are expected to identify and understand the cross functional relationships of Supply Chain with other areas within an organization such as marketing and finance. Practical application of some of analytical tools and quantitative techniques is done in the group project work.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics entrepreneurship
2. Apply models to analyze entrepreneurship eco-systems
3. Appreciate the value entrepreneurs create for the society and the economy

Course Contents

Introduction to Supply Chain Management

Introduction to SCM, Supply Chain Networks, Supply Chain Networks and Supply Chain Infrastructure, Supply Chain Networks and Distribution, Logistics is not SC, Supply Chain Strategy and Logistics, Supply Chain Strategy and Product Development

Managing inventory

Supply Chain and Inventory Management, IT and ERP in Supply Chain, Postponement in Supply Chain

Distribution

Supply Chain Coordination, Strategic Sourcing, Supply Chain Alignment, Supply Chain Risk, Designing Channels of Distribution

Collaboration

Build the right collaborative model, SC Buyer and Supplier Relationships

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage

Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Cohen, S., Roussel, J. (2012) *Strategic Supply Chain Management: The Five Core Disciplines for Top Performance* (Second Edition). McGraw Hill Professional.
- Cordon, C., SundtoftHald, K., Seifert, R. W. (2016) *Strategic Supply Chain Management.* Taylor and Francis.
- de Kok, A.G., Graves, S. C. (2016) *Supply Chain Management: Design, Coordination and Operation* (Latest Edition). Elsevier
- Prater, E., Whitehead, K. (2013) *An Introduction to Supply Chain Management: A Global Supply Chain Support Perspective* (Latest Edition) Harvard Business School Publishing
- Shapiro, J., F., (2010) *Modeling the Supply Chain*, Duxbury.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi E., (2016) *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies* (Latest Edition).
- Vollmann, T.E., Berry, W.L., Whybark, D.C. and Jacobs, F.R., (2012) *Manufacturing Planning and Control for Supply Chain Management*, (Latest Edition). McGraw-Hill.

Course Code: MGMT 311
Title: Management Information Systems

Credit Hours: 03

Pre requisites:

Course Introduction:

This course aims to expose the students to the field of management information systems. Course participants will be exposed to various types of information systems, softwares that support such systems, and there use in management.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the information systems
2. Apply best practices for information sorting and storing
3. Analyze information systems

Course Contents

Introduction to Supply Chain Management

Introduction to SCM, Supply Chain Networks, Supply Chain Networks and Supply Chain Infrastructure, Supply Chain Networks and Distribution, Logistics is not SC, Supply Chain Strategy and Logistics, Supply Chain Strategy and Product Development

Managing inventory

Supply Chain and Inventory Management, IT and ERP in Supply Chain, Postponement in Supply Chain

Distribution

Supply Chain Coordination, Strategic Sourcing, Supply Chain Alignment, Supply Chain Risk, Designing Channels of Distribution

Collaboration

Build the right collaborative model, SC Buyer and Supplier Relationships

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%

Final-Term Exam   40%

Recommended Books:

- Cohen, S., Roussel, J. (2012) *Strategic Supply Chain Management: The Five Core Disciplines for Top Performance* (Second Edition). McGraw Hill Professional.
- Cordon, C., SundtoftHald, K., Seifert, R. W. (2016) *Strategic Supply Chain Management.* Taylor and Francis.
- de Kok, A.G., Graves, S. C. (2016) *Supply Chain Management: Design, Coordination and Operation* (Latest Edition). Elsevier
- Prater, E., Whitehead, K. (2013) *An Introduction to Supply Chain Management: A Global Supply Chain Support Perspective* (Latest Edition) Harvard Business School Publishing
- Shapiro, J., F., (2010) *Modeling the Supply Chain*, Duxbury.
- Simchi-Levi, D., Kaminsky, P. and Simchi-Levi E., (2016) *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies* (Latest Edition).
- Vollmann, T.E., Berry, W.L., Whybark, D.C. and Jacobs, F.R., (2012) *Manufacturing Planning and Control for Supply Chain Management*, (Latest Edition). McGraw-Hill.

PROGRAMMING COURSES

Course Code: COMP-111
Title: Introduction to Computer Softwares
Credit Hours: 03

Course Introduction:

This course is intended to achieve the following objectives:

1. To enable the students independently use Microsoft word, Microsoft Excel, Power Point.
2. To enable the students, use SPSS, E-views, Microfit and other related soft wares for estimation of econometric models.

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.

Power Point and MS-Access (XP)

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

SPSS and E-Views

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 EViews for Model Estimation.

Estimation of Production Function

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

Computer Applications: Demand, Supply and Equilibrium

Estimation of Demand and Supply using E-Views/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-Views etc. for Cost-Benefit Analysis, Estimation of Present Values, Estimation of Economic and Social Benefits. Project Appraisal Using E-Views 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-Views Manual (Learning help available with package (Software)).
- Gimi, C., Annette, M., Browning, K. (2018) *Mastering Microsoft* (Latest Edition)
- Robertson, D. F. (2010) *Computer Applications and Programming* USA: Har Brace Jovanovich Inc., Latest edition.
- SPSS-Manual

Course Code: PROG-111
Title: Programming with Python

Credit Hours: 03

Pre requisites:

Course Introduction

Python is a language with a simple syntax, and a powerful set of libraries. It is an interpreted language, with a rich programming environment, including a robust debugger and profiler. While it is easy for beginners to learn, it is widely used in many scientific areas for data exploration. This course is an introduction to the Python programming language for students without prior programming experience. We cover data types, control flow, object-oriented programming, and graphical user interface-driven applications. The examples and problems used in this course are drawn from diverse areas such as text processing, simple graphics creation and image manipulation, HTML and web programming, and genomics.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of programming
2. Use various data structures for programming as well as storage
3. Design a program flow chart
4. Program basic problems and tasks

Course Contents

Conceptual introduction: topics in computer science, algorithms; modern computer systems: hardware architecture, data representation in computers, software and operating system; installing Python; basic syntax, interactive shell, editing, saving, and running a script.

The concept of data types; variables, assignments; immutable variables; numerical types; arithmetic operators and expressions; comments in the program; understanding error messages;

Conditions, boolean logic, logical operators; ranges; Control statements: if-else, loops (for, while); short-circuit (lazy) evaluation

Strings and text files; manipulating files and directories, os and sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted file (csv or tab-separated). String manipulations: subscript operator, indexing, slicing a string; strings and number system: converting strings to numbers and vice versa. Binary, octal, hexadecimal numbers

Lists, tuples, and dictionaries; basic list operators, replacing, inserting, removing an element; searching and sorting lists; dictionary literals, adding and removing keys, accessing and replacing values; traversing dictionaries.

Design with functions: hiding redundancy, complexity; arguments and return values; formal vs actual arguments, named arguments. Program structure and design. Recursive functions.

Simple Graphics and Image Processing: "turtle" module; simple 2d drawing - colors, shapes; digital images, image file formats, image processing Simple image manipulations with 'image' module (convert to bw, greyscale, blur, etc).

Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes, data modeling; persistent storage of objects, inheritance, polymorphism, operator overloading (_eq_, _str_, etc); abstract classes; exception handling, try block

Graphical user interfaces; event-driven programming paradigm; tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames

Multithreading, Networks, and Client/Server Programming; introduction to HTML, interacting with remote HTML server, running html-based queries, downloading pages; CGI programming, programming a simple CGI form. Searching, Sorting, and Complexity Analysis

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Downey, A. (2018) *Think Python* (Latest Edition)
- Lambert, K. (2012) *Fundamentals of Python: First Programs*, Cengage Learning, 2012

Course Code: PROG-305
Title: Data visualization and analysis

Credit Hours: 03

Pre requisites:

Course Introduction

By the end of this course, learners are provided a high-level overview of data analysis and visualization tools, and are prepared to discuss best practices and develop an ensuing action plan that addresses key discoveries. It begins with common hurdles that obstruct adoption of a data-driven culture before introducing data analysis tools (R software, Minitab, MATLAB, and Python). Deeper examination is spent on statistical process control (SPC), which is a method for studying variation over time. The course also addresses do's and don'ts of presenting data visually, visualization software (Tableau, Excel, Power BI), and creating a data story.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of data analysis
2. Apply best practices to data visualization
3. Create a variety of visual content using chosen programming language
4. Create a data story

Course Contents

Data Analysis Software Tools
Introduction to Data Analysis and Visualization, Context, Objectives, and Analysis Plans, Review of Python, Techniques and Best Practices, Discusses Maximizing the Value of Data, Introduction to Visualization

Statistical Process Control (SPC)
Variation Sources, Control and Specification Limits, Variation Analysis, Process Performance

Data Visualization and Translation
Guiding Principles, Data Story, Tableau, Excel, and Power BI, Discusses Data Visualization essentials, Insight Evaluation, Testing and Re-Evaluation, sustaining a Data-Driven Strategy

Project: Data Analysis and Visualization
A project on Data Analysis and Visualization

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Bertin, J. (2010) *Semiology of Graphics* (Latest Edition)
- Meeks, E. (2017) *D3.js in Action* (2nd Edition)
- Murry, S. (2017) *Interactive Data Visualization for the Web* (2nd Edition)
- Wickham, H. (2019) *ggplot2 Elegant Graphics for Data Analysis* (Latest Edition)
- Wilkinson, L. (2019) *The Grammar of Graphics* (Latest Edition)

Course Code: PROG-408
Title: Data Analysis using R

Credit Hours: 03

Pre requisites:

Course Introduction

Statistical Data Management and Analysis using R course provides an insight into quantitative data management and analysis (exploring, summarizing, statistical analyzing, visualizing). R is an open source software with many features for quantitative data management and analysis.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of data analysis
2. Program in R environment
3. Apply data analysis techniques in R programming language

Course Contents

- Introduction to R: This entails installation of R and R-studio as well as relevant packages such as reshape2, readr, readxl, haven, dplyr, and ggplot2, etc
- Introduction to programming (basic syntax, Scripts – Documenting, commenting & sharing code)
- Loading and importing data into R: The learner will also be able to save data in R and perform data cleaning
- Data management and manipulation: The learner will study how to create and manipulate objects– Vectors, Matrices, Dates & Times.The learners will be required to learn to print conditional tables/filtering, sort data, append, merge and reshape datasets, and concatenate and order variables
- Descriptive statistical analysis: Learner will be taken through computations of measures of central tendency (mean, mode and median), measures of dispersion (variance, standard deviation, interquartile range, range, coefficient of variation), skewness and kurtosis
- Inferential statistical analysis: Learner will be introduced to Hypothesis testing;- parametric and non-parametric tests. This will be followed by correlation and regression(Simple and multiple linear regression, logistic regression) as well as survival analysis
- Visualizing: Basic plots that include:- Histograms, Multi–panel plotting, Boxplots, scatter plots, density plots and line plots, bar graphs and pie-charts

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Hothorn, T., Everitt, B. S. (2010) *A handbook of Statistical Analysis using R* (Latest Edition)
- Maindonald, J. (2018) *Data Analysis and Graphics using R: An example based approach* (Latest Edition)

Course Code: PROG-410
Title: Data Analysis using Matlab

Credit Hours: 03

Pre requisites:

Course Introduction

This course provides an insight into quantitative data management and analysis (exploring, summarizing, statistical analyzing, visualizing) using Matlab, which is one of the most widely used programming environment for Data Analysis

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of data analysis
2. Program in Matlab environment
3. Apply data analysis techniques in Matlab programming language

Course Contents

- Introduction to Matlab: This entails installation of Matlab, as well as introduction to relevant packages
- Introduction to programming (basic syntax, Scripts – Documenting, commenting & sharing code)
- Loading and importing data into Matlab: The learner will also be able to save data in Matlab and perform data cleaning
- Data management and manipulation: The learner will study how to create and manipulate objects– Vectors, Matrices, Dates & Times. The learners will be required to learn to print conditional tables/filtering, sort data, append, merge and reshape datasets, and concatenate and order variables
- Descriptive statistical analysis: Learner will be taken through computations of measures of central tendency (mean, mode and median), measures of dispersion (variance, standard deviation, interquartile range, range, coefficient of variation), skewness and kurtosis
- Inferential statistical analysis: Learner will be introduced to Hypothesis testing;- parametric and non-parametric tests. This will be followed by correlation and regression(Simple and multiple linear regression, logistic regression) as well as survival analysis
- Visualizing: Basic plots that include:- Histograms, Multi–panel plotting, Boxplots, scatter plots, density plots and line plots, bar graphs and pie-charts

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Fausett, L. (2018) *Applied Numerical Analysis using Matlab* (Latest Edition)
- Mathews, J., Fink, K. (2015) *Numerical methods using Matlab* (Latest Edition)

DECISION SCIENCES AND BUSINESS ANALYTICS COURSES

Course Code: DECS-301

Title: Quantitative Decision Sciences

Credit Hours: 03

Pre requisites: Calculus 1

Course Introduction

This course is designed to provide students with a sound conceptual understanding of the role that management science plays in the decision making process. It is an important introductory course in developing decision models and understanding their application to management problems. The emphasis is on models and techniques that are widely used in all industries and functional areas, including operations, finance, accounting, and marketing.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
2. Implement these techniques as part of a spreadsheet-based decision-support tool
3. Setup and solve a range of optimization problems (in different areas of application) by correctly recognizing constraints, decision variables and objective(s)
4. Setup and solve basic predictive models by correctly identifying the appropriate technique, understanding its underlying assumptions and interpreting the results
5. Setup and solve descriptive modelling techniques including simulation and basic queuing models by correctly describing the defining features of the queuing system, including server(s), customer(s), length of the queue, arrival rate(s) and service rate(s)
6. Effectively communicate their problem-solving approach, selected tool(s), results, limitations and implications to support the decision maker.
7. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
8. Implement these techniques as part of a spreadsheet-based decision-support tool
9. Setup and solve a range of optimization problems (in different areas of application) by correctly recognizing constraints, decision variables and objective(s)
10. Setup and solve basic predictive models by correctly identifying the appropriate technique, understanding its underlying assumptions and interpreting the results
11. Setup and solve descriptive modelling techniques including simulation and basic queuing models by correctly describing the defining features of the queuing system, including server(s), customer(s), length of the queue, arrival rate(s) and service rate(s)
12. Effectively communicate their problem-solving approach, selected tool(s), results, limitations and implications to support the decision maker.

Course Contents

Introduction
- Course introduction & logistics
- Introduction to Modeling

Introduction to Optimization and Linear Programming
- The essential elements within mathematical optimization
- Characteristics of optimization problems
- Mathematical programming
- Basics of Linear programming (LP)

Solving Linear Programming problems
- Understand the approach towards modeling linear programming problems.
- Solve LP problems using simple calculus.

Modeling and Solving LPs in a Spreadsheet
- Make vs. buy decisions
- Investment problem
- Transportation problem
- Blending problem
- Production and inventory planning problem
- Multi-period cash flow problem

Sensitivity Analysis
- Understand the purpose of sensitivity analysis
- Analyze the sensitivity reports generated in Excel
- Appreciate the benefits and limitations of sensitivity analysis
- Understand shadow prices

Integer LPs, Nonlinear and Mixed LPs
- Understand the structure of IP models
- Develop and analyze graphical solutions of IPs.
- Develop and analyze Spreadsheet solutions of IPs.

Introduction to Network Flow Modeling Problems
- Transshipment problem
- Transportation problem
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- Maximal flow problem
- Minimal spanning trees

Introduction to Queuing theory
basic dynamics of simple queuing models, characteristics, notation and basic terminology

- common queuing models with multiple servers, different arrival and service distributions
- development of queuing models in a spreadsheet for real problems and critical assessment

Decision Analysis
- The payoff matrix
- Decision Trees
- Non-probabilistic methods
- Probabilistic methods

Teaching Methodology

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Quizzes/Assignments	25%
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Final-Term Exam	40%

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- Taylor, B. (2006) *Introduction to Management Science* (13th edition)

Course Code: DECS-302
Title: Principles of Big Data Analytics

Credit Hours: 03

Pre requisites: Calculus 1

Course Introduction

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Learning Outcomes

Upon the completion of the course, students should be able to

1. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
2. Implement these techniques as part of a spreadsheet-based decision-support tool
3. Setup and solve a range of optimization problems (in different areas of application) by correctly recognizing constraints, decision variables and objective(s)
4. Setup and solve basic predictive models by correctly identifying the appropriate technique, understanding its underlying assumptions and interpreting the results
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Course Code: DECS-303
Title: Decision Analysis

Credit Hours: 03

Pre requisites: Calculus 1

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Learning Outcomes

Upon the completion of the course, students should be able to

1. Implement these techniques as part of a spreadsheet-based decision-support tool
2. Setup and solve a range of optimization problems (in different areas of application) by correctly recognizing constraints, decision variables and objective(s)
3. Setup and solve basic predictive models by correctly identifying the appropriate technique, understanding its underlying assumptions and interpreting the results
4. Setup and solve descriptive modelling techniques including simulation and basic queuing models by correctly describing the defining features of the queuing system, including server(s), customer(s), length of the queue, arrival rate(s) and service rate(s)
5. Effectively communicate their problem-solving approach, selected tool(s), results, limitations and implications to support the decision maker.
6. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
7. Implement these techniques as part of a spreadsheet-based decision-support tool
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11. Effectively communicate their problem-solving approach, selected tool(s), results, limitations and implications to support the decision maker.
12. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science

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Course Code: DECS-304
Title: FinTech

Credit Hours: 03

Pre requisites: Calculus 1

Course Introduction

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Learning Outcomes

Upon the completion of the course, students should be able to

1. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
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Course Code: DECS-401
Title: Operations Research

Credit Hours: 03

Pre requisites: Calculus 1

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Course Code: DECS-403
Title: Digital Marketing Analysis

Credit Hours: 03

Pre requisites: Calculus 1

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Course Code: DECS-405
Title: Business Analytics

Credit Hours: 03

Pre requisites: Calculus 1

Course Introduction

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Learning Outcomes

Upon the completion of the course, students should be able to

1. Discuss basic modeling techniques across prescriptive and descriptive decision-models in the area of management science
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FINANCE COURSES

Course Code: FIN 201
Title: Principles of Finance

Credit Hours: 03

Pre-requisites: ACC-111

Course Introduction:

This is a beginning level finance course involving fundamental concepts of finance, including background on the economic and financial environment, financial statements (with an emphasis on cash flows), the time value of money, bond valuation, risk analysis, and stock valuation.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the basics of finance.
2. Apply the basic financial calculations to real world firms.
3. Compute time value of money, bond valuation, risk analysis, and stock valuation.

Course Contents

Preliminaries

Introduction to Financial Management

Introduction to Financial Management Business Finance and the Financial Manager Forms of Business Organization The goal of Business Finance/ Financial Management Financial Markets and Corporation

Understanding and working with Financial Statements

Overview of Financial Statements Working with Financial Statements Standardized Financial Statements Using Financial Statement Information

Interest Rates

The Cost of Money Determinants of Market Interest Rate Term Structure of Interest Rates The Yield Curve Forward Rates Macroeconomic Factors and Interest Rates

Introduction to Valuation – the time value of money

Time Value of Money Future Value and Compounding Present Value and Discounting Discounted Cash Flow Valuation Annuities and Perpetuities Effect of Compounding Periods Loan types and Amortization

Bond valuation

Bonds and Bond Valuation Bond Features and characteristics Bond Ratings Types of Bonds Bond Markets Inflation Bond Yields, YTM, YTC

Stock Valuation

Common Stock Valuation Common and Preferred Stocks Stock Markets

Risk and Return

History of Capital Markets Returns, Historical Record, Average Returns, Capital Market Efficiency, Risk and Return, Expected Returns and Variances, Portfolios, Risk , SML and Cost of Capital

capital budgeting

Net Present Value and Investment Criteria, Capital Budgeting Techniques(NPV, ARR, IRR, PI), Making Capital Investment Decisions, Pro forma Financial statements and Project Cash Flows

Cost of Capital

Basics Definitions and Logic of WACC, Costs of the different sources of capital, Cost of Debt, Cost of Preferred Stock, Cost of Common Equity, Flotation Cost and Cost of New Common Equity, Composite or Weighted Average Cost of Capital, Factors Affecting WACC, Risk Adjustment of Cost of Capital, Estimating Project Risk

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Brealey, Myers, Allen (2000). *Principles of Corporate Finance* (Latest Edition)
- Brigham, E. F., Houston, J. F. (2000), *Fundamentals of Financial Management* (13th Edition)
- Ross, Westerfield & Jordon, Fundamentals of Corporate Finance (Latest Edition or 11th Edition)
- Van Horne, J. C., Wachowicz, J. M., *Fundamentals of Financial Management*, (Latest ed.), Prentice Hall

Course Code: FIN 301
Title: Intermediate Finance

Credit Hours: 03

Pre requisites

Course Introduction

This course is the continuation of Principles of Finance. It aims to make students realize the importance and relevance of the ever changing nature of finance. This course should give students a strong background in understanding the major financial decisions made by the managers of the firm in achieving the goal of stockholder wealth maximization. Students gain an appreciation of how firms obtain and allocate scarce capital in an environment of uncertainty, and how they return funds to claimants on the firm's assets. In preparation for these decisions, students are expected to have studied financial reporting, the time value of money, risk, and security valuation. The course will begin with a quick review of time value of money. Students must be prepared to recognize and assess ethical, regulatory, and legal issues associated with financial decision-making and the explicit and implicit contracts that exist between the firm's managers, its suppliers of capital, other stakeholders, and society at large. They are also expected to keep abreast of technological advances that permit the introduction and deployment of a large variety of financial instruments to address the needs of participants in the marketplace. A relatively strong background in economics, quantitative analysis and accounting is expected of students taking the class.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand major financial decisions made by the managers
2. recognize and assess ethical, regulatory, and legal issues associated with financial decision-making

Course Contents

Preliminaries

Review of basic concepts

Corporate Financial Planning

The Sales Forecast, the Additional Funds Needed (AFN) equation, Excess Capacity Adjustments, Forecasted Financial Statement, Fixed and Variable Inputs, Forecasting, Ratios and EPS.

Capital Budgeting

Capital Budgeting Process and Principles • Project Classifications • Capital Budgeting Decision Rules • NPV Profile • Ranking Conflicts between NPV and IRR • Multiple IRR • Modified IRR • Payback and Discounted Payback

Cash Flow Estimation and Risk Analysis

Conceptual Issues in Cash Flow Estimation • Analysis of Expansion and Replacement Projects • Replacement Chains and Equivalent Annual Annuities • Risk Analysis of

Capital Investments-Stand Alone Methods 1. Sensitivity Analysis 2. Scenario Analysis • Risk Analysis of Capital Investments

Valuation

The Concept of Free Cash Flow (FCF) • Market Value Added (MVA) and Economic Value Added (EVA) • The Corporate Valuation Model using FCF

Working Capital Management

Current Asset Investment Policies • Current Asset Financing Policies • The Cash Conversion Cycle • The Cash Budget and Cash Management • Cash and Marketable Securities • Inventories • Accounts Receivable and Credit Policy • Accounts Payable and Accruals • Bank Loans

Capital Structure and Leverage

Target Capital Structure • Business Risk and Operating Leverage • Financial Risk • Determining Optimal Capital Structure • The Hamada Equation • Effect of Capital Structure on EPS • Recapitalization

Dividends &Share Repurchases

Dividends versus Capital Gains • Factors Affecting Dividend Payout Policy: Clientele Effect and Signaling Effect • Residual Dividend Model • Dividend Payment Procedure • Other Factors Influencing Dividend Policy • Other Types of Dividends • Stock Repurchases

Capital Markets, Long term debt, preferred stock, common stock, loans and leases

Further Topics in Finance

Options, warrants, mergers and corporate restructuring

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Brigham, E. F., Houston, J. F. (2000), *Fundamentals of Financial Management* (13th Edition)
- Titman, S., Keown, A. & Martin J. *Financial Management: Principles and Applications* (Latest ed.), Pearson

- Van Horne, J. C., Wachowicz, J. M., *Fundamentals of Financial Management*, (Latest ed.), Prentice Hall

Course Code: FIN 303
Title: Financial Statement Analysis

Credit Hours: 03

Pre requisites:

Course Introduction:

This is a basic course for the analysis of financial statements and valuation of companies. The course has the main aim of giving the students an opportunity to have hands on financial analysis of Pakistani companies. The students are expected to identify the information contained in the three main financial statements, describe the use of financial statements in ratio analysis and define how profitability and rate of return on assets are calculated. Focus in on ratio calculations for long and short term risk analysis and to determine the debt and profit risk in a company using ratio analysis and appropriate adjustments for differences in reporting to put companies on a comparable basis. Studying the cash flow based approach for valuing companies in order to develop pro forma financial statements.

Learning Outcomes

Upon the completion of the course, students should be able to

1. analyze financial statements
2. identify the information contained in the three main financial statements
3. compute profitability and rate of return on assets
4. perform ratio analysis

Course Contents

INTRODUCTION AND BUSINESS STRATEGY ANALYSIS

ACCOUNTING ANALYSIS

Overview of Financial statement Analysis, Introduction to Business Analysis, Types of Business Analysis, Components of Business Analysis, Financial Statement.

Ratio analysis, how different accounting rules affect ratios,

FINANCIAL ANALYSIS

Dupont analysis, cash flow analysis, Margins and turnover,

FORECASTING

Structure determination and forecasting,

VALUATION

Understanding cost of capital, valuation models, application of discounted cash flows and residual income models, predicting returns

SYNTHESIS, REVIEW AND APPLICATIONS

Determinants of valuation ratios, mergers, IPOs,

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Lundholm, Sloan, (1998) *Equity Valuation and Analysis* (4th edition)
- Needles, Powers (2010) *Financial Accounting* (Latest Edition)
- Subramanyam, K. R. (2017). *Financial Statement Analysis* (11th Edition). McGraw Hill Inc.
- White, S., Fried, (2010). *The Analysis and Use of Financial Statements*, (Latest Edition). West Sussex: John Wiley & Sons, Inc.,

Course Code: FIN 304
Title: Corporate Financial Reporting

Credit Hours: 03

Pre requisites:

Course Introduction:

The course is designed to broaden the knowledge base built on the basic accounting with emphasis on International Financial Reporting Standards. This course will help participants to prepare the financial statements in accordance with the requirements of IFRS to be able to comply with the reporting requirement of the international pronouncements. Emphasis will be laid on the accounting for transactions relating to tangible and intangible assets including transactions relating to their common financing matters.

Learning Outcomes

Upon the completion of the course, students should be able to

1. prepare the financial statements in accordance with the requirements of IFRS
2. handle a variety of transactions

Course Contents

The Firm

Nature and regulations of companies, operations, financing of company operations

Legal Requirements

Presentation of Financial Statements

Inventories

Statement of Cash Flows

Disclosure legal requirements, presentation of financial statements, accounting for company income tax

Measurement

Fair value measurement, property, plant and equipment, intangible assets, business combinations and impairment of assets,

Consolidation

controlled entities, wholly owned subsidiaries, intragroup transactions, non-controlling interest,

Other Topics

Accounting for investments in associates, Insolvency and liquidation,

Teaching Methodology

- To deliver lectures on topics included in course outline

- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Cotter, D. (2014) *Advanced Financial Reporting, A complete Guide to IFRS* (1st Edition). Financial Times Publications
- Leo, K., Hoggett, J., Sweeting, J., (2010) *Company Accounting* (Latest Edition). John Wiley & Sons Australia
- Mirza, A. A., Holt, G. J., Orrell, M. (2012) *IFRS Practical Implementation Guide and Workbook.* Wiley Publications.

Course Code: FIN 311
Title: Risk Management

Credit Hours: 03

Pre requisites

Course Introduction:

Risk is costly. Minimizing the cost of risk to an optimum level unanimously means that we are increasing the value of an organization. However, the cost of risk minimization, albeit is easy to say or learn conceptually, is very much difficult to implement either by self-managed method or by risk transfer approach. This course is of importance to business students expecting to deal with professional lives in future. This course is designed to introduce and discuss various risk concepts, tools and techniques used by financial institutions in a global context. Using integrated approaches, the course will emphasize the design and implementation of risk management practices used by financial institutions.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand risk optimization techniques
2. Apply concepts, tools, and techniques to financial instruments.
3. Use integrated approach to risk management.

Course Contents

Principles of Risk Management

Definitions of risk, threat, opportunity and uncertainty management; relationship with performance objectives, implications for uncertainty management, Sources of uncertainty, General responses to uncertainty (anticipation, resilience, flexibility, control), Risk evaluation Cost benefit analysis as a basic framework: scope and limitations, Multi-party issues Risk ownership, risk allocation and related risk management implications

Enterprise Risk Management and Insurance

Risk Management of Corporate Governance, Basic insurance concepts and practices, Insurance Supply and Demand, Legal Context, Insurance Pricing, Risk Financing and Alternative Risk Transfer Options

Project Risk Management

A generic risk management process for planning a project at a strategic level on behalf of a client, The impact of earlier and later life cycle positions and changes in other process drivers, An outline of comparable alternative generic processes, Examples of different kinds of processes in different contexts

Risk Taking and Decision Making

The nature of decision-making and decision modelling, Structuring a decision, Decision models to handle uncertainty, Decision models to handle risk, Risk attitude and utility, Individual differences in risk taking, Subjective probability elicitation

Credit Risk and Data Analytics

Introduction to data analytics, CRISP-DM process model and retail credit risk modelling, Introduction to the Basel II and III regulations and Internal Rating-Based (IRB) models, Descriptive/diagnostic analytics (e.g. basic descriptive statistics, principal component analysis, etc.), Data pre-process (e.g. sampling, outlier detection, etc), Classification approaches (e.g. logistic regression, decision trees, etc.) for scorecard development, Performance measurements for scorecards (e.g. ROC curves, Lift, Gini, etc.), Use of linear/non-linear regression models for IRB models

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Baesens, B., Rösch, D., Scheule, H (2016). *Credit Risk Analytics: Measurement Techniques, Applications, and Examples in SAS*. Hoboken, NJ, USA.: Wiley.
- Chapman, C. B., Ward, S.C. (2003). *Project risk management: processes, techniques and insights*. Chichester: John Wiley & Sons
- Goodwin, P., Wright, G. (2014). *Decision Analysis for Management Judgement*. J. Wiley
- Thomas, L.C (2009). *Consumer Credit Models: Pricing, Profit, and Portfolios*. New York: Oxford University Press.
- Ward, S. (2004). *Risk Management: organisation and context*. London: Witherby

Course Code: FIN 310

Title: Islamic Banking and Finance
Credit Hours: 03
Prerequisite: Principles of Microeconomics and Principles of Macroeconomics

Course Introduction:

Islamic banking course provides an opportunity to explore, investigate and become professionally competent. According to an estimate upto 20% of the world population utilizes or actively seeks Islamic banking services. With no previous financial experience of knowledge of banking required, students will be introduced to the concept of Islamic banking and the way in which it differs from traditional banking. It covers the primary and unique characteristics of Islamic finance, along with how Islamic law applies to and affects the financial dealings. It is based on the principles of socio-economic justice.

Learning Ourcomes:

By the completion of the course, students should be able to learn:

1. Various tools used in Islamic Economics to provide banking services keeping in view the Islamic rulings.
2. Financial products offered under Islamic Banking

Course Contents:

Introduction of Islamic Banking	Provision of a comprehensive introduction to Islamic banking. Discovering the financial instruments offered by Islamic banks. Awareness of the theory behind Islamic banking practices
Basics of Islamic Banking and Finance	Exploring the philosophy of Islamic banking and financing alongwith the series of key alternative financing principles. Knowledge about Mudarabah, Musharkah, Murabaha-Mu'ajjal and Salam
Islamic Banking and Conventional Banking	Highlighting the key differences between Islamic banking and conventional banking. Islamic banking model and its comprehensive definition and overview of how the model work in a contemporary business setting. Exploration of the difference between Islamic banking and others and magnitude of difference from conventional western banking
Islamic Law of Contract	Contract laws under the rules of Islamic banking and representation of balancing situation. Explanation of the key elements of Islamic contracts, the various types of contracts relevant to Islamic banking and their framework
Islamic Financial Products	Deeper insight into specific Islamic financial products, touching upon Islamic financial institutions, investment banking, and introduction

	to Islamic principles in relation to stock and sukuk (Islamic bonds for the generation of returns to investors
Islamic Business Ethics	Analyzing the Islamic business ethics, incorporating essential teachings on gentleness, honesty, legitimate earnings and justice
Globalization of Islamic Banking	Islamic banking and finance on a global basis and representation of the contemporary international Islamic financial institutions including the Islamic Financial Services Board and the International Islamic Rating Agency

Teaching Methodology:

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Ahmad, K. (1976). *Islami Nazriya Hayat*. Karachi: Institute of policy studies.
- Chapra, M. U. (1992). *Islam and the economic challenge*. Lahore: The Islamic foundation.
- Dar, A. H., & Akram, M. M. (2007). *Islamic Economics*. Lahore: Ilmi Kitab Khana.
- Mannan, M. A. (2006). *Islamic Economics : theory and practice*. Lahore: Sh. Muhammad
- Ashraf.
- Mulathawi, M. H. (1995). *Muashiyat Islam.* Karachi: Manghu Peer Sharif.
- Naqvi, S. N. H.(2003). *Perspectives on Morality and Human Well-Being: A Contribution to Islamic Economics*. UK: The Islamic Foundation.
- Naqshbandi, Q. M. A. *Islamic Economics*. Lahore: Iqra Books

Course Code: FIN 403
Title: Financial Derivatives

Credit Hours: 03

Pre-requisites:

Course Introduction:

The main objective of this course is to help students gain the intuition and to provide the necessary skills for pricing and hedging of derivative securities, and for using them for investment, risk management, and prediction purposes. Further, applications and real-life cases are discussed, including the use of derivatives in asset management, the valuation of corporate securities such as stocks and corporate bonds, interest rate derivatives, credit derivatives, as well as crude oil derivatives and currency derivatives. In addition to theoretical discussions, practical considerations of implementing strategies using derivatives as tools, especially when no-arbitrage conditions do not hold, are also discussed. The course aims to teach students how to analyze a problem/situation involving derivatives.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Compute pricing and hedging of derivative securities
2. use of derivatives in investment design
3. analyze a problem/situation involving derivatives

Course Contents

Introduction to derivatives market - stock, bond, currency markets, basics of risk, short-selling

Forward and Futures Market – time value in forward markets, cross market interest rates, currency forwards, settlement in forward markets, difference between futures and forwards, futures indices, Forward Contracts on Non-Dividend Paying Stocks, Forward Contracts on Dividend Paying Stocks and Stock Indices

Forward and Future Contracts on Commodities, Forward and Futures Contracts on Currencies, Forward and Futures Contracts on Interest Rates, Hedging with Futures

Introduction to Swaps: Commodity, Total-Return, and FX Swaps, Interest Rate and Currency Swaps, Introduction to Options

The Binomial-Tree and Risk Neutral Pricing, Derivative Pricing in the Binomial-Tree Model

Plain vanilla options and basic strategies – payoffs and profits from options, futures, and forwards; insurance strategies, spreads, straddles, simple hedging, Put-call parity, style and maturity

Asset pricing using Black-Scholes valuation – basic formula, volatility, dynamic beta hedging, volatility "smirks" and "smiles", VIX "fear gauge"

Interest rate swaps – yield curve and discounting, valuation, swap rate and swap term structure, swap options

Delta-Hedging and Option Returns, Credit derivatives

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Back, K. (2010). *A Course in Derivative Securities: Introduction to Theory and Computation* (Latest Edition).
- Hull, J. C. (2000) *Options, Futures, and Other Derivatives* (10th Edition)
- Lo, A. (2016). *DERIVATIVE PRICING – A Problems Based Primer* (Latest Edition). CRC Group
- McDonald, R.L. (2013). *Derivative Markets* (Third Edition). Pearson
- Natenberg, S. (2012). *Option Volatility and Pricing: Advanced Trading Strategies and Techniques* (2nd Edition)

Course Code: FIN 411
Title: Introduction to Actuarial Sciences

Credit Hours: 03

Pre-requisites:

Course Introduction:

This course is designed to introduce students to the working of insurance and the role of actuaries within them. The course is designed to invoke curiosity in course participants about the actuarial profession and for students who wish to pursue non-actuarial roles in insurance organizations. The course covers life insurance companies as institutions and discuss the features of products and companies. Participants are introduced to actuarial calculations of those products. The course will end with real world implications of actuarial work. (IT related work and professionalism).   The course is not meant to prepare students completely to pass actuarial exams but to give them an idea of what actuarial work entails in the scope of a life insurance company and to introduce them to the mathematics of actuarial science.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the working of life insurance companies
2. Undertake calculations of actuarial products
3. Apply the learning to real world situations

Course Contents

Risk and Insurance
Concept of Risk. Classification of Risks. Assessment of Risk. Transfer of Risk. Concept of Insurance and its origin, Insurance as tool to transfer of risk. Classification of Insurance Principles of Insurance; Subrogation and Contribution

Review of Financial Mathematics
Sequences and Series: Geometric Series, Arithmetic Series, Newton-Raphson, Taylor Series, Exponents and Logarithms, Simple and compound Interest, The Effective Rate of Interest, Time Value of Money, Present Value, Accumulated Value, Discount Rate, Valuing Multiple Regular Payments, Equations of Value. Annuity Certain, Level Annuities and determination of their values, present values payment made in arrear, payments made in advance, accumulations, continuously payable annuities, annuities payable pthly- present values, varying annuities- annual payments, continuously payable annuities, decreasing payments, special cases- irregular payments, sudden changes in interest rates, compound increasing annuities, deferred annuities-annual payments, continuously payable annuities, annuities payable pthly accumulations

Population Structure

Structure of Population: Measures of Age and Sex Composition of the Population. Age pyramid, Population Growth: Measures of Population growth – Balancing Equation, Arithmetic, Geometric, Exponential, Logistic. Doubling Time.

Survival Models

Survival Models: Distribution of Future Lifetime, Force of Mortality, Rates of Mortality, Expectations of Life, Gompertz's law and Makeham's law. Exposed to Risk: Principle of Correspondence, Exact calculation of initial exposed to risk and central exposed to risk, Distribution of Future Lifetime, Censoring: Censoring in mortality investigation. Its various types and illustrations. Exposed to Risk: Principle of Correspondence, Kaplan-Meier Model, Nelson-Aalen Model: Estimating the lifetime distribution function using the Kaplan-Meier and Nelson-Aalen models. Regression Model: Cox Regression Model: Parametric models for the hazard function,

Working of Life Insurance Companies

Introduction to State Transitions, Two State Model (Active/Dead), Calculating Probabilities using the Two State Model, Life Table: Concepts, Assumptions, Construction of Life Tables-Complete and Abridged -. Various types, Uses of Life Tables. Single Decrement Associated Life tables, Multiple Decrement Life table – Multi State Life table, Building a scenario of The Life Insurance Company, Monte Carlo simulation performing repeated stochastic projections of a financial process of single projection, Reserves, Adjustments to Reserves

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Arunajatesan, S., Viswanathan, T. R. (2000) *Risk Management and Insurance* (Latest Edition). Macmillan
- Hinde, A. (1998) *Demographic Methods* (Latest Edition). London
- Joshi, M. S. (2008) *The Concepts and Practice of Mathematical Finance* (2nd Edition). Cambridge University Press

Course Code: FIN 402
Title: Financial Econometrics

Credit Hours: 03

Pre-requisites:

Course Introduction:

The course is designed to introduce the applications of econometrics methodology towards finance. Long-run financial relations are established, introducing course participants to various modeling and forecasting techniques, while considering the data characteristics to choose the right model. Simulations are introduced, as well as panel data, used widely in the equity markets for forecasting.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand various econometrics models with reference to finance
2. Access, clean, and Analyze financial data
3. Choose the right financial model on the basis of data properties

Course Contents

Modelling long-run relationships in finance
Random walk models, Stationarity/Non stationarity and unit root testing, Tests for unit roots in the presence of structural breaks, Cointegration, Equilibrium correction or error correction models

Univariate time series modelling and forecasting
Moving average process, Autoregressive process, Partial autocorrelation function, ARMA/ARIMA models, Building ARMA models: the Box–Jenkins approach, Forecasting with univariate models. Exponential smoothing, HP filter, Kalman filter

Multivariate time series models
Vector autoregressive models, Block significance and causality tests, Impulse responses and variance decompositions, Testing for and estimating cointegrating systems using the Johansen technique based on VARs, Forecasting with Multivariate models

Modelling volatility and correlation
Models for volatility, Historical volatility, Implied volatility models, Exponentially weighted moving average models, Autoregressive volatility models., Autoregressive conditionally heteroscedastic (ARCH) models, Generalised ARCH (GARCH) models, Asymmetric GARCH models, The GJR model, The EGARCH model, Covariance modelling and forecasting in finance, Multivariate GARCH models

Simulation
Introduction to simulation, Bootstrapping, Application of simulation in finance

Switching models

Seasonalities in financial markets, Modelling seasonality in financial data, Estimating simple piecewise linear functions, Markov switching models, Threshold autoregressive models,

Panel data

Introduction to Panel data, The fixed effects model, Time fixed effects model, Random effects model, Panel unit root and cointegration tests
Review of the linear model, OLS, GLS, GMM, Log-Likelihood and testing;

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books

- Brooks, C. (2014). *Introductory Econometrics for Finance* (3rd edition). Cambridge University Press
- Koop, G. (2006). *Analysis of Financial Data* (Latest Edition). Wiley
- Tsay, R. (2001). *An introduction to analysis of financial data with R* (12th edition). Wiley

Course Code: FIN 404
Title: Corporate Finance

Credit Hours: 03

Pre-requisites:

Course Introduction:

This course provides a foundation to various topics in corporate finance. In addition to basic tools and techniques, the course covers some advanced topics such as capital budgeting, cash flow estimation and short term financial planning etc. This combination of basic and advanced topics enables students to use and apply the various concepts while studying advanced courses of finance as well as in real financial planning so that the various goals of the corporation are achieved.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand capital budgeting, cash flows, and financial planning
2. Apply various concepts to real financial planning.

Course Contents

Introduction

Time value of money vis-à-vis interest rates, cash flow streams evaluation, Perpetuities and annuities, Discounting, compounding, future value, taxes, inflation and interest rates, valuing zero-coupon bonds, valuing annuities, valuing perpetuities

Interest rates

SBP discount rate, KIBOR, relation between discount rate and interest rates, Opportunity cost of capital, affective annual rates, yield curve, spot rates

Discounted cash flow analysis

Intro to financial statements, valuing models, NPV, forecasting earnings, free cash flow, discounted cash flow, sensitivity analysis, scenario analysis, breakeven analysis, leverage, profit margins and profitability index

Return on Investment

IRR, choice between projects, amortization

Valuing Stocks

Dividend discount model, total payout and free cash flow valuation model, measuring returns, share repurchases, price-earning ratio

Corporate Capital Structure

Equity vs debt financing, Modigliani-Miller theorem, interest tax deduction, firm market valuation, optimal capital structure, Weighted average cost of capital, Efficient market hypothesis, Market imperfections

Teaching Methodology

- To deliver lectures on topics included in course outline

To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Berk, J., DeMarzo, P. (2012). *Corporate Finance* (3rd ed.). Pearson - Prentice Hall
- Brealey, Myers, Allen (2014) *Principles of Corporate Finance* (Latest Edition). Prentice Hall
- Brigham, Ehrhard (2004), *Financial Management - Theory and Practices* (Latest Edition)
- Van Horne, J.C. (1996) *Financial Management and Polic*y (Latest Edition)

Course Code: FIN 405
Title: International Financial Markets

Credit Hours: 03

Pre-requisites:

Course Introduction:

The course draws from the fields of Finance and Macroeconomics. The objective of this course is to introduce the Global Financial System. The course develops a series of applications of principles from finance and economics that explore the connection between financial markets, monetary policy and the macro economy. It also provides an understanding of the underlying institutions, both political and economic, that either make financial markets work well or that interfere with the efficient performance of these markets. The course will focus on current events reported in the financial press with an extensive and open-ended discussion in every class.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the significance of global financial institutions
2. Apply macroeconomics principles to finance
3. Critically analyze proceedings in financial press

Course Contents

International Capital Markets

The role of capital markets in the economy, Bond markets, Equity markets, Derivatives markets, Efficient markets versus behavioural finance, Valuation of securities, Portfolio strategies
Foreign Exchange Markets, Currency Risks and Hedging Strategies

Macroeconomic context, Understanding foreign exchange markets' working, Spot rates / Forward rates, Arbitrage, Interbank Market, Hedging & Speculation
International Macro Economics

Theory of comparative advantages (Ricardo), Understanding trade balances and current accounts, International capital flows, Supply side versus demand side stimulus 'to Keynes or not to Keynes?', Foreign direct investment, The international institutional arena (IMF, World bank etc..)
Monetary Economics and Banking in International finance perspective

The History of Money, The role of central banks and their tool kit, Money Creation and Credit, Money supply, Inflation, deflation, Banking regulation (Basel III etc..), alternatives like Bitcoin
International Financial Reporting & Stakeholder Management

International Financial Reporting Standards (IFRS), Generally Accepted Accounting Principles (GAAP), Accounting & Ethics, Stakeholder Management & Sustainability

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Sharpe, J. (2011). *Foreign Exchange: The Complete Deal: A Comprehensive Guide to the Theory and Practice of the Forex Market* (Latest Edition). Harriman House Ltd

Course Code: FIN 421
Title: Fixed Income Securities

Credit Hours: 03

Pre-requisites:

Course Introduction:

The course draws from the fields of Finance and Macroeconomics. The objective of this course is to introduce the Global Financial System. The course develops a series of applications of principles from finance and economics that explore the connection between financial markets, monetary policy and the macro economy. It also provides an understanding of the underlying institutions, both political and economic, that either make financial markets work well or that interfere with the efficient performance of these markets. The course will focus on current events reported in the financial press with an extensive and open-ended discussion in every class.

Learning Outcomes

Upon the completion of the course, students should be able to

1. Understand the significance of global financial institutions
2. analyze alternate investments opportunities
3. understand various fixed income securities
4. calculate risk and return related to fixed income securities.

Course Contents

Issuers, Instruments, and Financial Intermediaries

Bond Pricing
Bond Price volatility

Interest rates, Term structure of Interest rates, interest rate determination models
Hedging, and interest rate related securities

Money market instruments
Credit, significance of credit in markets, Credit risk

Bonds and introduction to related options

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Martellini, (2015). *Fixed Income Securities* (Latest edition). Wiley

Course Code: FIN 411
Title: Portfolio Management

Credit Hours: 03

Pre-requisites:

Course Introduction

The course aims to introduce issues related to investment from the perspective of security analysis and portfolio management. Market efficiency and portfolio analysis will be used as the conceptual framework within which active portfolio management will be put into perspective.

Learning Outcomes

Upon the completion of the course, students should be able to

1. understand the essentials of funds management in financial market to the earnings while managing cash flows
2. analyze alternate investments opportunities

Course Contents

Preliminaries

Economic Analysis and Expectations

Asset classes and allocation

Mean – Variance theories: CAPM, CCAPM, APT

Fixed-income portfolio management

Equity Portfolio management

Alternative investments portfolio management

Risk management

Implementation: Trading and transaction costs

Monitoring, rebalancing, and portfolio performance monitoring

Teaching Methodology

- To deliver lectures on topics included in course outline
- To require each student to solve independent assignments on topics included in the course.

Evaluation Criteria:

Evaluation Method	Total Percentage
Quizzes/Assignments	25%
Mid-Term Exam	35%
Final-Term Exam	40%

Recommended Books:

- Elton, E. J., Gruber, M. J., Brown, S. J., Goetzmann, W. N. (2014). *Modern Portfolio Theory and Investment Analysis* (Ninth edition). Wiley & Sons
- Jones, C. P. (2012) *Investments Analysis and management* (Latest Edition). W.W. Norton
- Reilly, Brown. (2010) *Investment Analysis and Portfolio Management* (Latest Edition), PrenHall

Compulsory Courses (Non-Field)

Course Code: ISE-111
Title: Islamiyat
Credit Hours: 02

Course Introduction

The course aims to introduce students to the basic principles of Islamiyat. It will enhance their understanding of Islamic civilization, values, and culture.

Learning Outcomes:

This course is aimed:

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 the issues related to faith and religious life

Course Contents

Introduction to Quran Studies

- Basic Concepts of Quran
- History of Quran
- Uloom-ul –Quran

Study of Selected Text of Holly Quran I

- Verses of Surah Al-Baqra related to Faith (Verse No. 284-286)
- Verses of Surah Al-Hujrat related to Adab Al-Nabi (Verse No. 1-18)
- Verses of Surah Al-Mominoon related to Characteristics of faith (Verse No. 1-11)
- Verses of Surah al-Furqan related to Social Ethics (Verse No. 63-77)
- Verses of Surah Al-anam related to Ahkam(Verse No.152-154)

Study of Selected Text of Holy Quran II

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

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

- Life of Muhammad Bin Abdullah (before Prophet hood)
- Life of Holy Prophet (S.A.W) in Makkah
- Important Lessons derived from the life of Holy Prophet in Makkah

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

- Life of Holy Prophet (S.A.W) in Madina
- Important Events of Life of Holy Prophet in Madina

- Important Lessons derived from the life of Holy Prophet in Madina

Introduction to Sunnah

- Basic concepts of Hadith
- History of Hadith
- Kinds of Hadith
- Uloom-ul-Hadith
- Sunnah & Hadith
- Legal Position of Sunnah

Selected Study from Text of Hadith Introduction to Islamic Law & Jurisprudence

- Basic Concepts of Islamic Law & Jurisprudence
- History & Importance of Islamic Law & Jurisprudence
- Sources of Islamic Law & Jurisprudence
- Nature of Differences in Islamic Law
- Islam and Sectarianism

Islamic Culture & Civilization

- Basic concepts of Islamic Culture & Civilization
- Historical development of Islamic Culture & Civilization
- Characteristics of Islamic Culture & Civilization
- Islamic Culture & Civilization and Contemporary Issues

Islam & Science

- Basic concepts of Islam & Science
- Contributions of Muslims in the Development of Science
- Quran & Science

Islamic Economic System

- Basic Concepts of Islamic Economic System
- Means of Distribution of wealth in Islamic Economics
- Islamic concept of Riba
- Islamic Ways of Trade & Commerce

Political System of Islam

- Basic concepts of Islamic Political System
- Islamic concept of Sovereignty
- Basic Institutions of Govt. in Islam

Islamic History

- Period of Khlafat-e-Rashida
- Period of Ummayyads

- Period of Abbasids

Social System of Islam

- Basic concepts of Social System of Islam
- Elements of Family
- Ethical Values of Islam

Recommended Books:

- Hameed ullah Muhammad. Emergence of Islam. IRI, Islamabad
- Hameed ullah Muhammad. Muslim Conduct of State.
- Hameed ullah Muhammad. Introduction to Islam.
- Hussain Hamid Hassan. An Introduction to the Study of Islamic Law. Leaf Publication Islamabad, Pakistan.
- Ahmad Hasan. (1993). Principles of Islamic Jurisprudence. Islamic Research Institute, International Islamic University, Islamabad.
- Mir Waliullah. (1982). Muslim Jurisprudence and the Quranic Law of Crimes. Islamic Book Service.
- H.S. Bhatia. (1989). Studies in Islamic Law, Religion and Society. Deep & Deep Publications New Delhi.
- Dr. Muhammad Zia-ul-Haq. (2001). Introduction to Al Sharia Al Islamia. Allama Iqbal Open University, Islamabad

Course Code: ISE-111
Title: Ethics (For Non-Muslims)
Credit Hours: 02

Course Introduction

The course aims to introduce students to the basic principles of Ethics. It will enhance their understanding of civilization, values, and culture.

Learning Outcomes:

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

1. Better appreciate the value of ethics
2. Apply ethical framework to decision making.

Course Contents

Definition of Ethics, Different Concepts of Ethics (Ancient and Contemporary), Types of Ethics, Good Ethics, Bad Ethics

Importance of Ethics in Human Life

Individual Life, Family Life, Social Life, Importance of Ethics in Economic Life, Importance of Ethics in Politics

Ethical Teachings and Values in Different Religions

- Hinduism
- Buddhism
- Zoroastrianism
- Christianity
- Judaism
- Sikhism
- Islam

Ethical Values of the above Religions

- Truthfulness
- Trustworthiness
- Service to Humanity
- Tolerance, Endurance
- Respect for Others
- Cooperation, Mutual Help, Selflessness
- Justice (Social Justice, Economic Justice)
- Equality

Concept of Virtue and Evil in Different Religions

Concept of "Flah" in Different Religions

Attitude Towards Other Religions

Recommended Books:

- John S. Mackenzie, A Manual of Ethics, 4th edition. Hinds, Hayden & Eldredge, Inc.
- Harold H. Titus. (1976). Ethics for Today, 5th edition Van Nostrand Reinhold Co.
- B. A. Dar. (1970). Quranic Ethics, Orientalia Art Ltd.
- Muhammad Hamidullah, Introduction to Islam, Darul Ishaat Pakistan.
- Syed Ameer Ali, The Spirit of Islam

Course Code: ENG-111
Title: Language in Use
Credit Hours: 03

Course Introduction:

Enhance language skills and develop critical thinking.

Course Contents

- Basics of Grammar
- Parts of speech and use of articles
- Sentence structure, active and passive voice
- Practice in unified sentence
- Analysis of phrase, clause and sentence structure
- Transitive and intransitive verbs
- Punctuation and spelling

Comprehension

Answers to questions on a given text

Discussion

General topics and every-day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening

To be improved by showing documentaries/films carefully selected by subject teachers

Translation skills, Urdu to English, Paragraph writing

Topics to be chosen at the discretion of the teacher

Presentation skills

Introduction

Note: Extensive reading is required for vocabulary building

Recommended Books:

Functional English

a) Grammar

- Practical English Grammar by A. J. Thomson and A. V. Martinet. Exercises 1. 3rd Edition. Oxford University Press. 1997. ISBN 0194313492
- Practical English Grammar by A. J. Thomson and A. V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506.

b) Writing

- Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.

c) Reading/Comprehension

- Reading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.
- d) Speaking

Course Code: PST-111
Title: Pakistan Studies
Credit Hours: 02

Course Introduction:

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.

Course Contents

Historical Perspective

a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad 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.

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

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

Recommended Books:

- Burki, Shahid Javed. (1980). State & Society in Pakistan, The Macmillan Press Ltd.
- Akbar, S. Zaidi. (2000). Issue in Pakistan's Economy. Karachi: Oxford University Press.
- S.M. Burke and Lawrence Ziring (1993). Pakistan's Foreign policy: An Historical analysis. Karachi: Oxford University Press.
- Mehmood, Safdar. (1994). Pakistan Political Roots & Development. Lahore.

- Wilcox, Wayne. (1972). The Emergence of Banglades., Washington: American Enterprise, Institute of Public Policy Research.
- Mehmood, Safdar. Pakistan Kayyun Toota, Lahore: Idara-e-Saqafat-e- Islamia, Club Road, nd.
- Amin, Tahir. Ethno - National Movement in Pakistan, Islamabad: Institute of Policy Studies, Islamabad.
- Ziring, Lawrence. (1980). Enigma of Political Development. Kent England: WmDawson & sons Ltd.
- Zahid, Ansar. (1980). History & Culture of Sindh. Karachi: Royal Book Company

Course Code: ENG-112
Title: Communication Skills
Credit Hours: 03

Course Introduction:
Enable the students to meet their real life communication needs.

Course Contents

Paragraph writing

Practice in writing a good, unified and coherent paragraph

Essay writing

Introduction

CV and job application

Translation skills

Urdu to English

Study skills

Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension

Academic Skills

Letter/memo writing, minutes of meetings, use of library and internet

Presentation Skills

Personality development (emphasis on content, style and pronunciation) Note: documentaries to be shown for discussion and review

Recommended Books:

Communication Skills

a) Grammar

- Practical English Grammar by A. J. Thomson and A. V. Martinet. Exercises 2. 3rd Edition. Oxford University Press 1986. ISBN 0 19431350 6.111

b) Writing

- Writing. Intermediate by Marie-Chrisitine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 45-53 (note taking).
- Writing. Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 194354065 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).

c) Reading

- Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 4534030.
- Reading and Study Skills by John Langan
- Study Skills by Riachard Yorky.

Course Code: ENG-211
Title: Basic Writing Skills
Credit Hours: 03

Course Introduction:
Enhance language skills and develop critical thinking

Course Contents

Presentation skills

Essay writing

Descriptive, narrative, discursive, argumentative

Academic writing

How to write a proposal for research paper/term paper?

How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency)

Technical Report writing

Progress report writing

Note: Extensive reading is required for vocabulary building

Recommended Books:

Technical Writing and Presentation Skills

a) Essay Writing and Academic Writing

- Writing. Advanced by Ron White. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 435407 3 (particularly suitable for discursive, descriptive, argumentative and report writing).
- College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.
- Patterns of College Writing (4th edition) by Laurie G. Kirszner and Stephen R. Mandell. St. Martin's Press.

b) Presentation Skills

c) Reading

- The Mercury Reader. A Custom Publication. Compiled by norther Illinois University. General Editiors: Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharton. (A reader which will give students exposure to the best of twentieth century literature, without taxing the taste of engineering students).

Course Code: ENG-212
Title: Advanced Reading and Writing Skills
Credit Hours: 03

Course Introduction:
After studying this course the students are expected to properly write Curriculum Vitae and covering letter. It will also enable them to critically evaluate English prose. They will also be able to give successful interview.

Course Contents

Professional Correspondence

CV and covering letter

Follow up messages after the job interview

Recommended Reading

Herta A. Murphy, *Effective Business Communication*, 7th edition (2009), New Delhi: Tata McGraw Hill Publishing Company Ltd., pp. 504-529, 540- 548.

Advanced Reading and Comprehension II

The students are required to read the given prose critically and answer the Questions.

Recommended Reading

B. Axelrod Rise and Charles R. Cooper, The St. Martin's Guide to Writing, New York: St. Martin's Press, 1985, pp. 146-147, 152-155, 158-172.

Job Interviews

The students should learn to handle job interviews through "mock interview".

Recommended Reading

Herta A. Murphy, Effective Business Communication, 7th edition (2009), New Delhi: Tata McGraw Hill Publishing Company Ltd., pp. 539-549.

Essay Writing

The students should be able to compose essays of 4 to 6 paragraphs relying on what they have learnt in the previous semesters about paragraph writing. Word limit about 500 words.

Vocabulary Building Skills

Word Root Method Unit 12-17, pp. 116-131

Recommended Books:

- Muhammad Idrees, Guide for GAT General Test: Smart Brain GRE (General, Local), 2010-2011 edition, Lahore: Dogar Brothers Publishers, 2010

Optional Courses: (Non-Economic)

Course Code: SOC-111
Title: Introduction to Sociology
Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Sociology

Course Contents

Introduction

What is sociology?

Sociology and other social sciences

Sociology and common sense / Stereotypes

Key terms – Social Problems / Sociological Issues

Sociological Perspective

Structuralism

Structural Functionalism

Social Conflict

Social Action

Symbolic Interactionism

Culture

What is culture?

Elements of Culture

Cultural Diversity

Socialization

Socialization and its importance

Agents of Socialization

Socialization through the life course

(*i*) C. H. Cooley

(*ii*) George Herbert Mead

Social Structure

(*i*) Status

(*ii*) Status Set

(*iii*) Achieved and Ascribed

(*iv*) Master Status

(*v*) Role

(*vi*) Role Set

(*vii*) Role Conflict

(*viii*) Role Strain

Theories of Social Interaction (Brief)

(*i*) Social Construction of Reality

(*ii*) Ethno Methodology

Groups and Organizations

Types of Groups

Studies of Group Behaviour

Bureaucracy and its Characteristics

Deviance

Deviance, Crime and Social Control

Types of Crime

Recommended Books:

- Margaret L. Andersen, Howard F. Taylor and Kim A. Logio. (2014). Sociology: The Essentials, 8th edition, Australia: Wadsworth.
- Ken Browne, (2008). Sociology, 3rd edition, UK: Polity Press.
- Anthony Giddens. (2002). Introduction to Sociology, UK: Polity Press.
- John J. Macionis. (2012). Sociology, 14th edition, Boston: Pearson.
- Henry L. Tischler. (2002). Introduction to Sociology, 7th edition, New York: The Harcourt Press.

Course Code: EDU-111
Title: Introduction to Education
Credit Hours: 03

Course Introduction:

This course will focus on the ideological, philosophical, psychological, socio-economic and historical foundations of education. The major focus will be on developing an understanding of the students, how different philosophical theories affect education. The course will also include historical development of education of the Pakistan. Emphasize will be given on analyzing various sociological, political, economic and ideological forces that influence the process of education in our culture. The students will be able to: Explain the important features of foundation of education, Specify the role of educational thinkers in education, Discuss the modes of education, Evaluate the issues and problems of education.

Course Contents

Ideological Foundations of Education

Islamic Foundations, Islamic concept of Peace, Other religions and Islam

Ideology and teachers

Philosophical Foundations of Education

Philosophy and Education

Main Philosophical Thoughts

Idealism

Realism

Pragmatism

Re-constructionism

Psychological Foundations of Education

Learning and Maturation

Individual Differences

Self-Concept

Academic Aptitude

Instructional Strategies and Psychology

Socio-Economic Foundations of Education

Concept of Society and Culture

Social Conditions and Education

Economic Conditions and Education

Politics and Education

Historical Foundations of Education in Pakistan

Pre-Pakistan Period (712 A.D. to onward)

Period from 1947-1958

Period From 1959-1971

Period from 1972-1979

Period from 1980 -1991

Period from 1992 – to date

Aims of Education

Aims, Goals and Objectives

Taxonomies of Objectives

Aims and Objectives of Education in Pakistan

Problems and Issues in Education in Pakistan

Universalization of Primary Education, Literacy, Medium of Instruction, Diversification of Education, Environmental Education, Gender and Education

Islamiazation of Education

Special Education

Health Education / Drug Education

Recommended Books:

- Canestrari, A. (2009). Foundations of Education. New York: Sage Publications.
- Eugene, F.P. (2005). Critical issues in education: Anthology of reading. New York: Sage Publications.
- Goldblatt, P.F., & Smith, D. (2005). Cases for teacher development. New York: Sage Publications.
- Holt, L.C. (2005). Instructional patterns: Strategies for maximizing students learning.
- Murphy, D. (2005). Foundations/Introduction to Teaching. USA: Allyn & Bacon, Inc.New York: Sage Publications.
- Semel, S. F. (2010). Foundations of education: The essential texts. USA: Routledge.

Course Code: PSY-111
Title: Applied Psychology
Credit Hours: 03

Course Introduction:

Definition; Brief historical background and schools of Psychology; Careers & Specialization in Psychology

Course Contents

Research Methods in Psychology

Observation (Naturalistic and Field study); Case history. Experimental Method, Survey; Interview

Statistical Analysis in Psychology

Definition and Importance of Statistics in Psychology Graphic Representation

Measures of Central Tendency: Mean Median and Mode.
Measures of variability: Standard deviation

Correlation: Pearson Product-moment & Rank Order

Biological Basis of Behavior

Brain Structure and Functions, Nervous System, Neurons, Parts of Nervous System; Endocrine glands

Sensation and Perception

Sensation: Characteristics of Sensation. Visual Sensation: Structure and Functions of the eye, Auditory Sensation Structure and Functions of the ear

Perception: Factors in perception, types of perception, perceptual organization; perceptual problems illusions and Hallucinations

Motivation

Definition and Classification; Primary (Biogenic) Motives Secondary Motives; intrinsic and Extrinsic Motives; Intrinsic and Extrinsic Motivation; Theories of Motivation

Emotion

Definition; Components of Emotion; Theories of Emotion. Expression of Emotions and Psychological Well being

Learning and Conditioning

Definition and Types; Classical and instrumental conditioning; Learning throughImitation; Cognitive learning

Memory

Definition; Types of Memory; Models of Memory; Memory Processes: Retention, Recall, Recognition and Retrieval; Forgetting, Theories of Forgetting; Improving Memory; Mnemonics

Thinking

Definition; Types (Realistic Autistic thinking, Creativity, problem solving); Tools of Thinking; Imagery; Language; Concepts

Intelligence

Definition; Theories of Intelligence; Assessment of Intelligence

Personality

Definition; Theories of Personality, Assessment of Personality

Recommended Books:

- Smith, E. E., Nolen-Hoeksema, S., Fredrickson, B. L. & Loftus G. R. (2003). Introduction to Psychology.   USA: Thomson Learning.
- Passer, M. W. & Smith, R. E. (2007). Psychology: The Science of Mind and Behavior. New York, NY:McGraw-Hill.
- Myers, D. G. (2001). Psychology (6thed.). USA: Worth Publishers.
- Breakwell, G. M., Smith, J. A. & Wright, D. B. (2012). Research Methods in Psychology. London:SAGE Publications.
- Carlson N. R. (2005). Foundations of Physiological Psychology. (6thed.). India: Pearson Education.
- Blake, R. & Sekuler, R. (2006). Perception (5thed.). USA: McGraw-Hill.
- Domjan, M. (2005). The Essentials of Conditioning and Learning. (3rded.). Belmont, CA: Wadsworth.
- Wilson, B. A. (2009). Memory Rehabilitation: Integrating Theory and Practice. New York, NY: The Guilford Press.
- Eysenck, M. W. & Keane M. T. (2005). Cognitive Psychology: A Student's Handbook, New York, NY: Psychology Press.
- Pervin, L. A., Cervone, D. & John, O. P. (2005). Personality: Theory and Research. USA: John Wiley & Sons

Course Code: HIS-111
Title: Introduction to History
Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of History.

Course Contents

Failure of the War of Independence and its effects, Condition of the Muslims. Government of India Act 1858. Indian Councils Act 1861. Sir Syed Ahmad Khan and the Aligarh Movement, His political and educational services. Indian National Congress. Syed Ameer Ali and the Central National Muhammadan Association. Indian Councils Act 1982, limitations and Impact on Muslims. Urdu-Hind controversy, Mohsin ul Mulk and formation of Mohammadan Political Organization. Partition of Bengal. Hindu reaction and annulment. Simla Deputation, Separate Electorate. Formation of All India Muslim League, its objects and early history, role of Nawab Saleem Ullah Khan, Waqar-ul-Mulk and Sir Agha Khan Minto-Morily Reforms of 1909 Lucknow Pact, its importance and drawbacks. The Government of Indian Act, 1919. Dyarchy and its failure. The Rowlatt Act Jalianwala Bagh Tragedy. Khlafat Movement. Ali Brothers and their role. The Constitution Problems of '1920's, Simon Commission, Nehru Report, Quaid-i-Azam's Fourteen Points, Round Table Confercnces, Communal Award & Poono Pact. Government of India Act 1935. Congress Ministries and their attitude towards Muslims, Pirpur Report, Evolution of the idea of a separate Muslim state, Iqbal's Allahbad Address. The ideology of Pakistan. Struggle for the Pakistan; Lahore Resolution 1940, Different Proposals for the Partition of the India, Cabinet Mission Plan; Elections of 1945-46, Third June Plan, Simla Conference Indian Independence Act 1947, Radcliffe Award. Services of Qauid-e-Azam Mohammad Ali Jinnah for the cause of Pakistan

Recommended Books:

- Shtiaq Hussain Qureshi: Struggle for Pakistan, Urdu translation.
- Jamil-ud-Din Ahmad: Early Phase of struggle for Pakistan. Middle Phase of Struggle for Pakistan. Final Phase of Struggle for Pakistan.
- Ch. Mohammad Ali: Emergence of Pakistan, Urdu

Course Code: GEOG-111
Title: Introduction to Geography
Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Geography

Course Contents

Introduction and Definitions of Geography

(*a*) Themes of Geography

(*b*) Roots of the discipline and basic geographic concepts

(*c*) The evolution of geography from ancient to modern period

(*d*) Branches of Geography and its relations with other disciplines

The Universe

(*a*) Galaxies and Solar system

(*b*) Origin of the Earth

Earth as a planet and celestial positions, its Shape and size

(*a*) Rotation and revolution and related phenomena

(*b*) Earths' Satellite Moon

(*c*) Lunar and solar Eclipses

Positions on Map and Globe

(*a*) Geographical coordinates and its characteristics

(*b*) World time zones standard and local time

Geological time scale

(*a*) Internal Structure of the Earth & Rocks.

(*b*) Distribution of land and water,

(*c*) Major Landforms (Mountain, Plateau and Plain)

Atmospheric Structure and Composition

Elements of Weather and Climate

Ocean and its Configuration

Movement of Oceans

Biomes

Recommended Books:

- Robert W. Christopherson. (2014). Geosystems: An Introduction to Physical Geography, 9th edition. Prentice-Hall, Inc.
- Harm J. de Blij and Peter O. Muller. (1996). Physical Geography of the Global Environment, 2nd edition. John Wiley and Sons Inc.
- P. Diwan and Dilip K. Arora. (1995). Origin of Ocean, Delhi: Anmol Publishers.
- R. E. Gabler, R. J. Sager and D. L. (1997). Wise, Essentials of Physical Geography, New York: Saunders College Publishing.
- Wilfrid George Kendrew. (1961). The Climates of the Continents, London: Longman.
- Cuchlaine A. M. King. (1980). Physical Geography, Oxford: Basil Blackwell.
- E. Willard Miller. (1985). Physical Geography: Earth Systems and Human Interaction, Columbus: Charles E. Merrill.
- Pakistan Geographical Review (Lahore)

Course Code: SOC-111

Title: Introduction to Sociology

Credit Hours: 03

Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Sociology

Course Contents

Introduction

What is sociology?

Sociology and other social sciences

Sociology and common sense / Stereotypes

Key terms – Social Problems / Sociological Issues

Sociological Perspective

Structuralism

Structural Functionalism

Social Conflict

Social Action

Symbolic Interactionism

Culture

What is culture?

Elements of Culture

Cultural Diversity

Socialization

Socialization and its importance

Agents of Socialization

Socialization through the life course

(*i*) C. H. Cooley

(*ii*) George Herbert Mead

Social Structure

(*i*) Status

(*ii*) Status Set

(*iii*) Achieved and Ascribed

(*iv*) Master Status

(*v*) Role

(*vi*) Role Set

(*vii*) Role Conflict

(*viii*) Role Strain

Theories of Social Interaction (Brief)

(*i*) Social Construction of Reality

(*ii*) Ethno Methodology

Groups and Organizations

Types of Groups

Studies of Group Behaviour

Bureaucracy and its Characteristics

Deviance

Deviance, Crime and Social Control

Types of Crime

Recommended Books:

- Margaret L. Andersen, Howard F. Taylor and Kim A. Logio. (2014). Sociology: The Essentials, 8th edition, Australia: Wadsworth.
- Ken Browne, (2008). Sociology, 3rd edition, UK: Polity Press.
- Anthony Giddens. (2002). Introduction to Sociology, UK: Polity Press.
- John J. Macionis. (2012). Sociology, 14th edition, Boston: Pearson.
- Henry L. Tischler. (2002). Introduction to Sociology, 7th edition, New York: The Harcourt Press.

Course Code: PHIL-111

Title: Introduction to Philosophy

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Philosophy.

Course Contents

The Lore of Philosophy

- Prelude
- Epistemologs
- Theologians
- Scientists
- The Queen of the Sciences

What Is Truth

- Sensation vs. Reason
- The Mystery of Knowledge
- Reason vs. Instinct.

Matter, Life and Mind

- Agnostic Prelude
- Materialism
- Idealism
- What is Matter
- Life
- The Materialist Speaks
- The Idealist Replies
- Synthesis

Man a Machine

- Perspective Mechanism
- Paterminism
- The age of Blolog

Our Changing Morals

- The Relativity of Morals
- The Agricultural Course Code

- The Industrial Code
- Our Immortal Elders
- The Family
- Causes.

The Reconstruction of Character

- The Elements of Character
- The Negative Character
- The Positive Character
- Remaking Character
- Recipes

Recommended Books:

- Will Darant. (1953). The Pleasures of Philosophy. New York: Simon and Schuster

Note: All non-Field compulsory and non-Field optional courses with course codes xxx-111 will follow the university wide course curriculum. These are produced here for reference.

Course Code: URDU-111

Title: Introduction to Urdu

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Urdu

Course Contents

The Lore of Philosophy

- Names and Voices of Urdu Alphabets
- Study of Alphabets in Urdu, Persian, Arabic
- Origin of Urdu Language (short study)

Art of Translation

- Art of translation and its importance
- Short history of translation in Urdu from English
- Principles of translation
- Practice of translation (from English into Urdu)

Technical Terms (Istelahat)

- Problems of technical terms in Urdu
- How to form technical terms?
- To prepare list of some literary and scientific technical terms with than English terms

Interview and Dialogue Writing

- Art of interview writing
- Through interviews 3 to 5 persons from different
- Art of dialogue writing. Examples by drama books
- Dialogue writing on different topics

Grammar

- Idioms, proverbs, prefixes, suffixes, synonyms, opposite words, syntax kinds of sentences and common errors in writing
- Figures of Speech: Laf-o-Nasar, Husn-e-Talil, Talmeeh, Iham, Tashbeeh, Isteara, Majaze-Mursal, Tajahile-Aarfana, Morratul- Nazeer, Tajnees and Mubalega

Course Code: BLAW-111

Title: Introduction to Business Law

Credit Hours: 03

Course Introduction:

To familiarize the students with the different Mercantile Laws affecting the economic and business environment in Pakistan. To make students understand the important elements and aspects of business and industrial laws. To equip the students with the necessary skills and aptitude to deal tactfully with the legal situations arising out of business routine matters

Course Contents

Introduction to Law of Contract 1872

Definition of Contract, Essentials of a valid contract, Contract and its kinds, Offer and Acceptance, Revocation of offer , Consideration and Object, Exceptions to Considerations, Unlawful considerations, Capacity of Parties, Persons of unsound mind, Disqualified persons, Free consent, Coercion and Undue influence, Fraud and misrepresentation, Mistake and its types, Void Agreements, Types and conditions , Contingent and Quasi Contracts, Performance of Contracts, Performance of joint promises, Reciprocal promises, Contracts not requiring performance, Discharge of Contract, Breach of Contract and its remedies, Indemnity and Guarantee, Bailment and Pledge, Essential features and parties, Rights and duties of parties, Termination of pledge and Bailment, Contract of agency, Creation of agency, Rights and duties of Principal and agent, Termination of agency

Contract of Sale of Goods

Essentials of a sale, Agreement to sell, Fixation of Price, Conditions and Warranties, Definitions and Difference, Doctrine of Caveat Emptor, Transfer of Property, Sale by non-owner, Performance of Contract of Sale, Rights of Unpaid seller

Law of Negotiable Instruments

Parties of Negotiable Instruments, Presentment of Negotiable Instruments, Negotiation of Negotiable Instruments, Dishonor of Negotiable Instruments, Banker and customer

Law of Carriage of Goods

Carriage of Goods of Land, Carriage of Goods by Sea, Carriage of Goods by Air

Law of Industrial Relations

Unfair Labor practices, Law of Labor in factories, Law of Industrial and Commercial Employment

Law of Partnership

Introduction and scope of Partnership Act 1932, Formation of and relations in Partnership, Rights, Duties and liabilities of Partners, Dissolution of firm and partnership

Recommended Books:

- Cheema, Khalid Mahmood, Business Law. (Latest Editions). Sayed Mobin Mahmud & Co. Lahore.
- Saeed, Khaja Amjad. Mercantile and Industrial Laws in Pakistan. (Latest Editions). Institute of Business Manageent, Lahore.
- Internet source: www.Paksearch.com

Course Code: MGMT-101

Title: Introduction to Business Administration

Credit Hours: 03

Course Introduction:

To enhance students to full range of functions of business organization

Course Contents

Business

Scope, Importance and Functions, Enterpreneminal qualities of Businessman.

Business environment and social responsibility.

Role of business in economic progress of the country

Problems of business.

Forms of Business Organization

Sole proprietorships – Nature, Advantages and Disadvantages, Partnership, Classification, Advantages and Disadvantages, Rights, Duties and Liabilities of Partners, dissolution of partnership. Joint Stock Company, Types – Chartered Statuary and Registered Formation – Memorandum of Association, Articles of Association, Prospectus, Capital Management, Meetings and Winding up Features, Merits and Demerits, Management of the Companies

Cooperative Ownership and Business Combinations

Types of Cooperatives, Advantages and Disadvantages. Business Combination, Meaning, Types and Forms causes and purposes, Advantages and Disadvantages

Finance

Definition, Components, Importance, Kinds and Sources, Long Term and Short Term Financing. Some Important Financial Institutions. Stock Exchange and Commodity Exchange, Nature, Role and Significance. Risk & Insurance, Protection against Risks, Importance and Types of Insurance, Types of Risks

Marketing

Process of Marketing, Definition, Functions and Scope Approaches to the Study of Marketing.

Marketing Mix for Physical Goods and Service Products, Importance. Channels of Distribution for Consumer Good and Organizational Goods. Marketing Communication and Promotion, Advertising, Personal Selling, Sales Promotion, Public Relation, Packaging.

Trade

Wholesale and Retail, Meaning, Importance, Functions, Advantages and Disadvantages. Foreign Trade, Imports and Exports, Role in Economic Development of the Country.

Physical Factors

Selecting Business Location, Factors Influencing Locations, Small Business, VS Large Business

Purchasing and Inventory Control Coordination of Purchasing with Sales, Organization of Purchasing Department, centralize vs. Decentralize Purchasing, Purchasing Policies and Procedure Inventory Control

The Personnel Department

Employment Division, Recovering, Placement Promotion. Wages and Salary Section, Analysis & Job Classification, Pay Scales. Training Program, Apprentice, Supervisory etc.

Recommended Books:

- Rober C. Appleby, Modern Business Administration, Shoukat Ali, Introduction to Business Muhammad Irshad, Introduction to Business. Latest Edition. Naveed Publication Lahore.
- Khalid Mehmood Cheema and Syed Mobin Mahmood. Introduction to Business & Co Lahore Latest Edition.
- Theodre J. Sielaff & Belmont. Introduction to Business. Latest Edition. California.
- Askari Zaidi, Fundamentals of Business, Orient Publishers, Karachi 8. Ali M. H., Introduction to Business

Course Code: ACC-111
Title: Principles of Accounting

Credit Hours: 03

Course Introduction:

The objective of the course is to provide an introductory knowledge of accounting to first-year students from a wide range of disciplines. While a general overview of accounting principles relating to the preparation of financial and managerial reports will be presented, the primary focus is to illuminate how accounting information is utilized by a variety of stakeholders in planning, controlling and investing decisions.

Course Contents

Introduction to Principles of Accounting

Definition of terms such as business, accounting, transaction, bookkeeping, capital, assets, liabilities, income, expenses and profit, Types of business activities: trading, manufacturing and provision of services, Types of business organizations: -sole proprietors such as vendors, small to medium enterprises -partnerships -limited companies, Importance of accounting, Users of accounting information such as households, managers, banks and proprietors.

Accounting Cycle

Accounting cycle: transactions, source documents, subsidiary books, ledger, trial balance, financial statements

Data Processing Methods

Manual method, Electronic method

Source Documents

Source documents and their significance: receipts, cheques, invoices, debit notes, credit notes, vouchers, bank statements, statements of account

Subsidiary Books

Subsidiary books: 2 column cash book, sales journal, purchases journal, sales returns journal, purchases return journal, interpretation of entries in the subsidiary books, Use of books of original entry: 3 column cash book, general journal, petty cash book, Interpretation of entries in subsidiary books, Use of the general journal, Interpretation of entries in the general journal

Ledger

Classification of entries, posting and balancing ledger accounts, interpreting ledger accounts, Classification, posting and balancing ledger accounts, Use of folio numbers, Types of ledgers and the ledger accounts, Interpretation of ledger accounts

Trial Balance and Errors

Trial balance: purpose and preparation, Trial balance and errors: purpose, preparation, and errors, Correction of errors, Suspense account, Correction of the trial balance, Effect of errors on profit, Adjustments on gross and net profit, Revised statements of - Profit - financial position (extracts)

Accounting Concepts

Concepts: matching/ accrual, prudence, going concern, consistency, historical cost, double entry

End of Year Financial Statements

Income statement, Statement of financial position, Interpretation of financial statements

End of Year Adjustments

Prepayments and accruals: for income and expenses, Depreciation: causes and methods, reducing balance method, straight line method, revaluation method, Closing entries, Disposal of non-current assets, Provisions for: doubtful debts, discounts allowable

Recommended Books:

- Jerry J. Weygandt, Donald E. Kieso, Paul D. Kimmel. (2007). Accounting Principles, 8th Edition Published by Wiley.
- Leiwy, D. and R. Perks (2013). Accounting: Understanding and Practice (Maidenhead: McGraw-Hill) Fourth Edition.
- **Tyler, J. Godwin, N. and Alderman, C. W. ACCT2 Financial, 2nd Asia-Pacific Edition, Cengage Learning, Australia.**
- Wood, F., Sangster, A. (2008). Business Accounting (11th ed.). Edinburgh: Prentice Hall.
- Wan, M. W. I., Palil, M. R. (2014). Fundamentals of Business Accounting (2nd ed.). Oxford University Press

Course Code: POL-111

Title: Introduction to Political Science

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Political Science

Course Contents

- Definition, Nature, Scope and Sub-fields of Political Science
- Relationship of Political Science with other social sciences
- Approaches to the study of Political Science: Traditional and Modern
- Basic concepts of Political Science: Power, Authority, Legitimacy, Nation and Sovereignty
- State: its origin and evolution; Western and Islamic concepts of State; Forms of State: Unitary, Federation, Confederation
- Organs of Government: Legislature, Executive, Judiciary
- Forms of Government: Parliamentary, Presidential, Authoritarian

Recommended Books:

- Choudhry Ahmad Shafi. (1996). Usul-e-Siyasiat (Urdu), Lahore: Standard Book Depot.
- Shaikh Bashir Ahmad. (1984). Riyasat Jo Ilm (Sindhi meaning Science of State), Jamshoro: Institute of Sindhalogy, University of Sindh.
- Mazhar ul Haq. (1996). Political Science: Theory and Practice, Lahore: Bookland.
- Michael G. Roskin, Robert L. Cord, James A. (2014). Medeiros and Walter S. Jones, Political Science: An Introduction, 12th edition. Pearson Education.

Course Code: IR-111

Title: Introduction to International Relations

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of International Relations.

Course Contents

- Meaning Definition and Scope of International Relations.
- Nature, Evolution and Significance of International Relations.
- International Law: Meaning and Scope
- Theories of IR: Idealist and Realist
- State System: Evolution and Characteristics.
- Foreign Policy: Definition and Determinants
- National Interests: Meaning and Types
- Diplomacy: Evolution and Kinds
- Power: Definition and Elements
- International and Regional Organizations: UN, SAARC, EU

Recommended Books:

- Columbus, Theodore. (1992). Introduction to International Relations: Power and Justice. New Delhi: Prentice Flail.
- Goldstine, Josha. (2003). International Relation, Washington DC: Pearson Education.
- Lawson, Stephanie. (2003). International Relations, Cambridge; Polity.
- Kegley, Charles W. Jr. (2009). World Politics Trends and Transformation, (12th ed.), United States of America

Note: All non-Field compulsory and non-Field optional courses with course codes xxx-111 will follow the university wide course curriculum. These are produced here for reference.

Course Code: JOUR-111

Title: Introduction to Journalism

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Journalism.

Course Contents

Journalism and Production of Newspaper

What is Journalism? Importance of Journalism in relation to society. How a newspaper is produced, from collection of news upto the preparation of copy? Printing Role of advertising in the life of a newspaper and society. Description of the Pakistan Press

Recommended Books:

- Fann-i-Sahafat by Dr. Abdus Salam Khurshid (Relevant Chapters)

Note: All non-Field compulsory and non-Field optional courses with course codes xxx-111 will follow the university wide course curriculum. These are produced here for reference.

Course Code: ARAB-111
Title: Introduction to the Arabic

Credit Hours: 03

Course Introduction:

The aim of this course is to provide students with a basic knowledge of Arabic, which is common to the entire Arabic-speaking part of the world and not specifically associated with any given country or region. The course covers grammar and essential vocabulary and focuses on the four language skills (listening, speaking, reading and writing), aiming to enable students to communicate in everyday situations

Course Contents

- Introduction to the Arabic language
- Alphabet and pronunciation
- Introducing oneself: name, nationality, profession
- Forming simple sentences
- Male and female forms
- Talking about one's family
- Feminine words
- Demonstratives (What's this?)
- Talking about one's work
- Plural forms
- Describing things
- Everyday objects (Whose is this?)
- Possessive endings
- Making polite requests
- The indefinite and definite articles
- 'Sun and moon letters'
- Describing places, time, days, months, colors etc.
- Asking questions (Where? How? What? etc.)
- Prepositions
- Introduction to dialect features
- The iḍafa construction
- Forming more complex sentences
- Describing one's town
- Writing and listening activities

- Overview and progress test

Recommended Books:

- Wightwick, J. and Gaafar, M. (2014). Mastering Arabic 1 (3rd ed.). London: Palgrave Macmillan.
- Alif Baa with DVDs. Introduction to Arabic Letters and Sounds, 2nd ed. By Brustad et al.
- Al-Kitaab fii Taallum al-Arabiyya with DVDscc. A Textbook for Beg Arabic: Part 1, 2nd ed. by Brustad et al.
- Understanding Arabs: A Contemporary Guide to Arab Society, 5th edn., by Margaret Nydell; Nicholas Brealey Publishing, 2012

Note: All non-Field compulsory and non-Field optional courses with course codes xxx-111 will follow the university wide course curriculum. These are produced here for reference.

Course Code: FREN-111

Title: Introduction to French

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of French

Course Contents

Written

Grammar

- Translation: French into English (Seen)
- Translation: English into French (Unseen)
- Simple Composition

Practical

Viva-Voce

Recommended Books:

- More Rapid French, Part I by W.F.H. Whitmarsh, Longmans, Green & Co., Ltd., London).
- More Rapid French, Part H (First ten lessons only) by W.F.H. Whitmarsh (Longmans, Green & Co., Ltd., London)

Course Code: SPAN-111

Title: Introduction to Spanish

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Spanish

Course Contents

Written

Grammar

- Translation from Spanish into English (based on the text)
- Locuelonce, Cuestionarios, Electricios, Including Cosal Utile and Proverbics contoined in the Text
- Composition

Practical

Viva-Voce

Recommended Books:

- New Spanish Reader by L.A. Wikins, Published by Harrap and Co., Ltd., London.
- Grammar shall include the regular and irregular verbs contained in "Apendicede

Course Code: CHIN-111

Title: Introduction to Chinese language

Credit Hours: 03

Course Introduction:

The purpose of this course is to train students to communicate in Chinese in an authentic setting

Course Contents

- At the beginner's level, students will learn writing skills like basic strokes, character components and single-component characters. They will also learn up to 260 Chinese characters, 40 grammatical points and 30 commonly-used sentences.
- Recognize and use simple words and phrases in general social situations (e.g., to greet, introduce, thank, apologize, compliment, express pleasure or regret).
- Grammar, Apply basic Chinese grammar rules and syntax in writing sentences on a given topic and in exercises.
- Vocabulary Talk about daily activities using basic vocabulary, grammar patterns, and standard usage with clear pronunciation and correct tones.
- Dialogues, Demonstrate comprehension of short reading selections (e.g., articles, dialogues, or short stories) by correctly responding to multiple choice or short-answer questions.
- Chinese pronunciation
- Tones
- Courtesy Expressions
- Pinyin
- Chinese writing system
- Numbers
- Radicals
- Family
- Dates and Time
- Hobbies
- Visiting Friends
- Making Appointments
- Idiomatic expressions
- Chinese culture
- Character writing
- Composing short paragraph using Microsoft Word

- Complete both oral and written tests on vocabulary, grammar patterns, and common usage throughout the semester.

Recommended Books:

- Yao, Taochung et al. Integrated Chinese 中文听说读写. Simplified Character Edition. Level 1, Part 1. 2 nd ed. Boston: Cheng & Tsui Company, 2005.
- Tao-chung Yao and Yuehua Liu. (2005). Integrated Chinese: Simplified Character Edition. 2nd ed. Cheng and Tsui: Boston.
- Tao-chung Tao and Yuehua Liu. (2005). Workbook, Integrated Chinese: Simplified Character Edition. 2nd ed. Cheng and Tsui: Boston.
- Tao-chung Tao and Yuehua Liu. (2005). Character Workbook, Integrated Chinese: Simplified Character Edition. 2nd ed. Cheng and Tsui: Boston.
- Chinese Made Easy. 2nd Edition, simplified characters version. By Yamin Ma and Xinying Li.
- The teacher may also sometimes use other texts. Whenever this happens, photocopies of the pages will be distributed.

Course Code: GER-111

Title: Introduction to German

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of German.

Course Contents

Written

Grammar

- Translation: German into English (Seen)
- Translation: German into English (Unseen)
- Simple Composition

Practical

Viva-Voce

Recommended Books:

- Schulz Griesbach: Deutsche sprachlehre fuer Auslacndcr, (available from German Department, Punjab University, one Volume edition) upto Chapter 15

Course Code: ITAL-111

Title: Introduction to Italian

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Italian.

Course Contents

Written

Grammar

- Translation from Italian into English (Seen)
- Translation Horn English into Italian (Unseen)
- Simple Composition

Practical

Viva-Voce

Recommended Books:

- V. CIOFFARI. Beginning Italian Grammar, Heath Boston 1965 (First 19 Lessons i.e., pp. 1 to 150).

Course Code: TURK-111

Title: Introduction to Turkish

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Turkish

Course Contents

Written

Grammar

- Translation from Turkish into English (Unseen)
- Translation Urdu into Turkish (unseen)
- Poetry
- Composition

Practical

Viva-Voce

Recommended Books:

- A Grammar of Modern Turkish, Part II.by Dr. Abdul Hafiz Akmut

Prose and Poetry

- Okuma Kitobi, art II. by Nevide Gokoydin

Course Code: PER-111
Title: Introduction to Persian

Credit Hours: 03

Course Introduction:

The objective of this course is to introduce the students with the fundamentals of the subject of Introduction to Persian.

Course Contents

Written

Grammar

- Translation from Persian into English (Unseen)
- Translation Urdu into Persian (unseen)
- Poetry
- Composition

Practical

Viva-Voce

Recommended Books:

- Abdul Ghani, (1929). A History of Persian Literature at the Mughal Court, Allahbad.
- Levy, R. (1969). Persian Literature, London.
- Nabi Hadi. (1995). A History of Indo-Persian Literature, New Delhi.
- Syces, P.M. (1915). A History of Persian Literature, London.
- Aryanpour, Minuchehr. (1973). A History of Persian Literature, Tehran.
- Browne, E.G. (1906). A literary History of Persia, New York.
- Yarshater, Ehsan. (1962). Some Characteristics of Persian Poetry and Arts, Studia Islamica, pp 61-72