Annexure – B(1)

Revised Scheme of Studies, Curriculum, and Course Outlines for BS Economics (8 Semesters), Associate Degree in Economics, and 5th Semester Intake (Post-ADP) for Morning, Evening, and Weekend Programs under the Semester System at the School of Economics, Bahauddin Zakariya University, Multan, its Sub-Campuses, and Affiliated Colleges (From 2025–2029 and onwards).

Semester 1

Course Code	Names of Courses	Category	Credit Hours
GED-501	Functional English	General-1	3 – Credit Hours
GED-503	Islamic Studies OR Religious Education /Ethics in lieu of Islamic Studies only for non-Muslim students	General-2	2 – Credit Hours
NSC*	Natural Sciences*	General-3: Natural Sciences	3 – Credit Hours
ECO-501	Principles of Microeconomics	Major-1	3 – Credit Hours
ECO-503	Issues in Pakistan Economy	Major-2	3 – Credit Hours
QURAN-501	Understanding of Holy Quran-I	General-4	2 – Credit Hours
Total			**16 Credit Hours**

Semester 2

Course Code	Names of Courses	Category	Credit Hours
GED-502	Expository Writing	General-5	3 – Credit Hours
GED-504	Ideology and Constitution of Pakistan	General-6	2 – Credit Hours
GED-506	Pakistan Studies	General-8	2 – Credit Hours
SOG**	Social Sciences**	General-7: Social Sciences	2 – Credit Hours
ECO-502	Principles of Macroeconomics	Major-3	3 – Credit Hours
ECO-504	Population Economics	Major-4	3 – Credit Hours
QURAN-502	Understanding of Holy Quran-II	General-9	2 – Credit Hours
Total			**17 Credit Hours**



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Semester 3

Course Code	Names of Courses	Category	Credit Hours
GED-507	Civics and Community Engagement	General-10	2 – Credit Hours
GED-509	Quantitative Reasoning-I	General-11	3 – Credit Hours
GED-511	Applications of Information and Communication Technologies (ICT)	General-12	3 – Credit Hours
ECO-505	Microeconomic Theory – I	Major-5	3 – Credit Hours
ECO-507	Development Economics: Concepts and Theories	Major-6	3 – Credit Hours
ECO-509	Islamic Economics	Major-7	3 – Credit Hours
Total			**17 Credit Hours**

Semester 4

Course Code	Names of Courses	Category	Credit Hour
GED-508	Quantitative Reasoning-II	General-13	3 – Credit Hours
GED-510	Entrepreneurship	General-14	2 – Credit Hours
ATH ***	Arts and Humanities	General-15: Arts and Humanities	2 – Credit Hours
ECO-506	Macroeconomic Theory – I	Major-8	3 – Credit Hours
ECO-508	Managerial Economics	Major-9	3 – Credit Hours
ECO-510	Quantitative Economics	Major-10	3 – Credit Hours
Total			**16 Credit Hours**

Note: *Any course from the list of NATURAL SCIENCES courses
****Any course from the list of SOCIAL SCIENCES courses**
***** Any course from the list of ARTS AND HUMANITIES courses**

Semester 5

Course Code	Names of Courses	Category	Credit Hours
ECO-601	Microeconomic Theory – II	Major-11	3 – Credit Hours
ECO-603	Macroeconomic Theory – II	Major-12	3 – Credit Hours
ECO-605	Mathematical Economics	Major-13	3 – Credit Hours
ECO-607	Econometrics – I	Major-14	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course -1	ALD-1	3 – Credit Hours
Total			**15 Credit Hours**

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Semester 6

Course Code	Names of Courses	Category	Credit Hours
ECO-602	Public Finance	Major-15	3 – Credit Hours
ECO-604	Development Economics: Problems & Policies	Major-16	3 – Credit Hours
ECO-606	Advanced Mathematical Economics	Major-17	3 – Credit Hours
ECO-608	Econometrics – II	Major-18	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course -2	ALD-2	3 – Credit Hours
Total			15 Credit Hours

Semester 7

Course Code	Names of Courses	Category	Credit Hours
ECO-609	International Trade: Theory & Policy	Major-19	3 – Credit Hours
ECO-611	Economics of Money and Banking	Major-20	3 – Credit Hours
ECO-613	Research Methodology	Major-21	3 – Credit Hours
INT-601	Field Experience/Internship	Internship	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course-3	ALD-3	3 – Credit Hours
Total			15 Credit Hours

Semester 8

Course Code	Names of Courses	Category	Credit Hours
ECO-610	International Finance	Major-22	3 – Credit Hours
ECO-612	Islamic Finance	Major-23	3 – Credit Hours
ECO-614	Financial Economics	Major-24	3 – Credit Hours
CAP-601	Research Project	Capstone Project	3 – Credit Hours
ALD-611	Artificial Intelligence for Economists	Allied/ Interdisciplinary Course-4 ALD-4	3 – Credit Hours
Total			15 Credit Hours

Note: ****Any course from the list of ALLIED/INTERDISCIPLINARY courses. ALD-611 (Artificial Intelligence for Economists) is mandatory.

Every student must complete a compulsory internship of six to eight weeks (3 credits) to successfully fulfill the degree requirements. The internship is preferably undertaken during the semester or the summer break.

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An undergraduate/equivalent degree program with **a single major** is focused on one disciplinary specialization and comprises of a **minimum of 120 credit hours** including the requirements of field experience/internship and capstone project. The breakup of credit hours is as below:

i. General education courses: 30 credit hours
ii. Major: minimum 72 credit hours
iii. Interdisciplinary/allied courses: minimum 12 credit hours
iv. Field experience/internship: 03 credit hours
v. Capstone project: 03 credit hours

Distribution of Credit & Courses

BS Economics		
	No. of courses	**Credit hours**
GENERAL EDUCATION COURSES	**15**	**36**
a. Arts & Humanities	01	02
b. Natural science	01	03
c. Social sciences	01	02
d. Functional English	01	03
e. Expository Writing	01	03
f. Quantitative Reasoning	02	06
g. Islamic Studies OR Religious Education /Ethics in lieu of Islamic Studies only for non-Muslim students	01	02
h. Ideology and constitution of Pakistan	01	02
i. Applications of information and communication technologies (ICT)	01	03
j. Entrepreneurship	01	02
k. Civics and community engagement	01	02
l. Pakistan Studies	01	02
m. Tafheem Ul Quran	02	04
MAJOR COURSES	**24**	**72**
ALLIED/INTERDISCIPLINARY COURSES	**04**	**12**
FIELD EXPERIENCE/INTERNSHIP	**01**	**03**
CAPSTONE PROJECT	**01**	**03**
Total	**45**	**126**
The **field experience/Internship** of six to eight weeks (preferably undertaken during semester or summer break) must be graded by a faculty member in collaboration with the supervisor in the field. This is a mandatory degree award requirement of 3 credit hours for all undergraduate/equivalent degree programs. However, for associate degrees, the requirement shall only be applicable where prescribed by the respective Accreditation Council, National Curriculum Review Committee or by the concerned university.		
A **capstone project** is multifaceted body of work that serves as a culminating academic and intellectual experience for students. The capstone project (preferably undertaken after the fourth semester) must be supervised and graded by a faculty member as per the protocols prescribed by the concerned department. This is a mandatory degree award requirement of 3 credit hours for all undergraduate/equivalent degree programs (except for associate degrees).		

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LIST OF MAJOR COURSES

Course Code	Names of Courses	Credit Hours
ECO-501	Principles of Microeconomics	3 – Credit Hours
ECO-502	Principles of Macroeconomics	3 – Credit Hours
ECO-503	Issues in Pakistan Economy	3 – Credit Hours
ECO-504	Population Economics	3 – Credit Hours
ECO-505	Microeconomic Theory – I	3 – Credit Hours
ECO-506	Macroeconomic Theory – I	3 – Credit Hours
ECO-507	Development Economics: Concepts and Theories	3 – Credit Hours
ECO-508	Managerial Economics	3 – Credit Hours
ECO-509	Islamic Economics	3 – Credit Hours
ECO-510	Quantitative Economics	3 – Credit Hours
ECO-601	Microeconomic Theory – II	3 – Credit Hours
ECO-602	Public Finance	3 – Credit Hours
ECO-603	Macroeconomic Theory – II	3 – Credit Hours
ECO-604	Development Economics: Problems & Policies	3 – Credit Hours
ECO-605	Mathematical Economics	3 – Credit Hours
ECO-606	Advanced Mathematical Economics	3 – Credit Hours
ECO-607	Econometrics – I	3 – Credit Hours
ECO-608	Econometrics – II	3 – Credit Hours
ECO-609	International Trade: Theory & Policy	3 – Credit Hours
ECO-610	International Finance	3 – Credit Hours
ECO-611	Economics of Money and Banking	3 – Credit Hours
ECO-612	Islamic Finance	3 – Credit Hours
ECO-613	Research Methodology	3 – Credit Hours
ECO-614	Financial Economics	3 – Credit Hours

*List of Natural Science Courses (3 Credit Hours)

Course Code	Names of Courses	Credit Hours
NSC-501	General Science	3 – Credit Hours
NSC-502	Environmental Science	3 – Credit Hours

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** List of Social Sciences Courses (2- Credit hours)

Course Codes	Names of Courses	Credit Hours
SOG-501	Introduction to Law	2 – Credit Hours
SOG-502	Introduction to Public Administration	2 – Credit Hours
SOG-503	Introduction to Criminology	2 – Credit Hours
SOG-504	Introduction to Education	2 – Credit Hours
SOG-505	Introduction to Demography	2 – Credit Hours

***List of Arts & Humanities Courses (2- Credit hours)

Course Codes	Names of Courses	Credit Hours
ATH-501	Introduction to Political Science	2 – Credit Hours
ATH-502	Introduction to International Relations	2 – Credit Hours
ATH-503	Introduction to History	2 – Credit Hours
ATH-504	Introduction to Psychology	2 – Credit Hours
ATH-505	Introduction to Sociology	2 – Credit Hours
ATH-506	Introduction to Fine Arts / Visual Art	2 – Credit Hours
ATH-507	Advertising & Marketing Communication	2 – Credit Hours
ATH-508	Gender Studies	2 – Credit Hours

****List of Allied/Interdisciplinary Courses (3- Credit hours)

Course Codes	Names of Courses	Credit Hours
ALD-601	Introduction to Business	3 – Credit Hours
ALD-602	Introduction to Finance	3 – Credit Hours
ALD-603	Introduction to Geography	3 – Credit Hours
ALD-604	Data Science & Data Base Management	3 – Credit Hours
ALD-605	Programing for Economists (Python/ R)	3 – Credit Hours
ALD-606	Statistical Software (SPSS, Stata, Eviews)	3 – Credit Hours
ALD-607	Principles of Marketing	3 – Credit Hours
ALD-608	Introduction to Financial Technology	3 – Credit Hours
ALD-609	Sustainable Development Studies	3 – Credit Hours
ALD-610	Fundamentals of Blue Economy	3 – Credit Hours
Mandatory Allied/Interdisciplinary Course		
ALD-611	Artificial Intelligence for Economists	3 – Credit Hours

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SEMESTER

1

Course Code	Names of Courses	Category	Credit Hours
GED-501	Functional English	General-1	3 – Credit Hours
GED-503	Islamic Studies OR Religious Education /Ethics in lieu of Islamic Studies only for non-Muslim students	General-2	2 – Credit Hours
NSC*	Natural Sciences*	General-3: Natural Sciences	3 – Credit Hours
ECO-501	Principles of Microeconomics	Major-1	3 – Credit Hours
ECO-503	Issues in Pakistan Economy	Major-2	3 – Credit Hours
QURAN-501	Understanding of Holy Quran-I	General-4	2 – Credit Hours
Total			**16 Credit Hours**

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Semester: 1st
Course Title: Functional English
Course Code: GED-501

Weeks	Topics
1 & 2	**1. Foundations of Functional English** • Vocabulary building (contextual usage, synonyms, antonyms and idiomatic expressions) • Communicative grammar (subject-verb-agreement, verb tenses, fragments, run-ons, modifiers, articles, word classes, etc.)
3 & 4	• Word formation (affixation, compounding, clipping, back formation, etc.) • Sentence structure (simple, compound, complex and compound-complex) • Sound production and pronunciation
5 & 6	**2. Comprehension and Analysis** • Understanding purpose, audience and context • Contextual interpretation (tones, biafses, stereotypes, assumptions, inferences, etc.)
7 & 8	• Reading strategies (skimming, scanning, SQ4R, critical reading, etc.) • Active listening (overcoming listening barriers, focused listening, etc.)
9 & 10	**3. Effective Communication** • Principles of communication (clarity, coherence, conciseness, courteousness, correctness, etc.) • Structuring documents (introduction, body, conclusion and formatting)
11 & 12	• Inclusivity in communication (gender-neutral language, stereotypes, cross-cultural communication, etc.) • Public speaking (overcoming stage fright, voice modulation and body language)
13 & 14	• Presentation skills (organization content, visual aids and engaging the audience) • Informal communication (small talk, networking and conversational skills) • Professional writing (business e-mails, memos, reports, formal letters, etc.)
15	**Suggested Practical activities (Optional)** As part of the overall learning requirements, students will also be exposed to relevant simulations, role-plays and real-life scenarios and will be required to apply skills acquired throughout the course in the form of a final project.

Recommended Books

1. Azar, B. S. (2002). *Understanding and using English grammar* (3rd ed.). Pearson Education.
2. Murphy, R. (2019). *English grammar in use* (5th ed.). Cambridge University Press.
3. Straus, J. (2014). *The blue book of grammar and punctuation* (11th ed.). Jossey-Bass.
4. Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centered approach*. Cambridge University Press.

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5. Downes, C. (2008). *Cambridge English for job-hunting*. Cambridge University Press.
6. Swan, M. (2016). *Practical English usage* (4th ed.). Oxford University Press.
7. James, M., & Merickel, A. P. (2007). *Reading literature and writing argument*. Pearson Longman.
8. Johns, J. L., & Lenski, S. D. (2011). *Improving reading: Strategies, resources, and common core connections*. Kendall Hunt Publishing.
9. Kintsch, W. (1998). *Comprehension: A paradigm for cognition*. Cambridge University Press.
10. Verma, J. P., & Raman, M. (2010). *Communication skills for business professionals*. Oxford University Press.

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Semester: 1st
Course Title: Islamic Studies
Course Code: GED-503

Weeks	Topics
1 & 2	**1. Introduction to Islam** • Definition or Islam and its core beliefs. • The Holy Quran (introduction, revelation and compilation). • Hadith and Sunnah (compilation, classification, and significance). • Key theological concepts and themes (Tawhid, Prophethood, Akhirah etc.).
3, 4 & 5	**2. Sirah of the Holy Prophet (Peace Be Upon Him) as Uswa-i-Hasana** • Life and legacy of the Holy Prophet PBUH. • Diverse roles of the Hol y Prophet PBUH (as an individual, educator, peace maker, leader etc.).
6, 7 & 8	**3. Islamic History and Civilization** • World before Islam. • The Rashid un-Caliphate and expansion of Islamic rule. • Contribution of Muslim scientists and philosophers in shaping world civilization.
9,10 & 11	**4. Islamic Jurisprudence (Fiqh)** • Fundamental sources of Islamic jurisprudence. • Pillars of Islam and their significance. • Major schools of Islamic jurisprudence. • Significance and principles of ijtihad.
12 & 13	**5. Family and Society in Islam** • Status and rights of women in Islamic teachings. • Marriage, family, and gender roles in Muslim society. • Family structure and values in Muslim society
14 & 15	**6. Islam and the Modern World** • Relevance of Islam in the modern world (globalization, challenges and prospects). • Islamophobia, interfaith dialogue, and multiculturalism. • Islamic viewpoint towards socio-cultural and technological changes

Recommended Books:

1. Al-Azami, M. M. (n.d.). *The five pillars of Islam: A journey through the divine acts of worship*.
2. Hussain, M. (2012). *The five pillars of Islam: A framework for Islamic values and character building*. Kube Publishing Ltd.
3. Mawdudi, A. A. (1932/1979). *Towards understanding Islam*. (English translation). *(Original Urdu edition 1932, later translated; you may include translator and edition details if known.)*
4. Ahmad, K. (n.d.). *Islami nazria e hayat*.
5. Renard, J. (n.d.). *An introduction to Islamic theology*.

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6. Mawdudi, A. A. (2015). *Islamic civilization: Foundational beliefs and principles*. Kube Publishing Ltd.
7. Ahmad, A. (n.d.). *Women and social justice: An Islamic paradigm*.
8. Ahmad, K. (2014). *Islam: Its meaning and message*. Islamic Foundation/Kube Publishing

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Semester: 1st
Course Title: Religious Education / Ethics (In lieu of Islamic Studies for Non-Muslim Students)
Course Code: GED-503

Weeks	Topics
1–2	**Introduction to Ethics and Religious Education** • Meaning, scope, and importance of ethics • Concept of religion and morality • Ethics vs. law, customs, and social norms • Importance of ethical education in a pluralistic society
3–4	**Ethical Thought and Moral Philosophy** • Historical development of ethical thought • Classical ethical theories (virtue ethics, duty-based ethics, consequentialism) • Moral reasoning and ethical decision-making • Concept of good and evil
5–6	**Ethical Teachings of Major World Religions** • Ethical values in Islam • Ethical values in Hinduism • Ethical teachings of Buddhism • Moral principles in Christianity • Comparative overview of religious moral values
7–8	**Human Values and Character Building** • Core human values: honesty, justice, tolerance, compassion • Respect for human dignity and life • Rights and responsibilities of individuals • Ethics of coexistence and peaceful living
9–10	**Ethics, Society, and Citizenship** • Ethics in social life • Social justice and equality • Ethics and human rights • Civic responsibility and ethical citizenship • Ethics in national and global perspectives
11–12	**Applied and Professional Ethics** • Ethics in education and workplace • Business and economic ethics • Media and communication ethics • Environmental ethics and sustainability
13–14	**Contemporary Ethical Issues** • Ethical challenges in science and technology • Bioethics and medical ethics • Gender equality and ethical concerns • Corruption, accountability, and governance

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15	**Interfaith Harmony and Ethical Dialogue** • Concept of interfaith harmony • Religious tolerance and peaceful coexistence • Ethics of dialogue and mutual respect • Role of ethics in conflict resolution • Review and concluding discussions

Recommended Books:

1. Dar, H. (2005). *Ethics and religious education*. Islamabad, Pakistan: Higher Education Commission.
2. Singer, P. (2011). *Practical ethics* (3rd ed.). Cambridge, UK: Cambridge University Press.
3. Rachels, J., & Rachels, S. (2015). *The elements of moral philosophy* (8th ed.). New York, NY: McGraw-Hill Education.

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Semester: 1st
Course Title: General Science
Course Code: NSC-501

Weeks	Topics
1–2	**Introduction to Science**: Definition and nature of science; what qualifies as science; importance of science; scientists and scientific practice; key terminology—fact, hypothesis, theory, law
3–5	**Evolution of the Scientific Method across Civilizations**: Prehistoric science; Mesopotamian and Egyptian contributions; Greek science; Chinese science; South Asian scientific traditions; Arab/Islamic scientific contributions; European scientific developments. Forms of reasoning: inductive, deductive, abductive, hypothetico-deductive, falsification
6–7	**The Modern Scientific Method**: Structure of modern science; advantages and limitations; emergence of science as the dominant approach to understanding the natural world
8	**Branches of Science – Physics**: Overview of scientific disciplines; major themes in Physics; applications; experimental approaches
9–10	**Branches of Science – Chemistry & Biology**: Major themes, applications, and experiments. Core theories: Gravity (Physics), Atomic Theory (Chemistry),
11	Evolution by Natural Selection (Biology). Relevance to academic majors and professions; practical applications
12–13	**Pseudoscience and Fake Science**: Characteristics of pseudoscience; causes and consequences; case studies (Cold Fusion, Telepathy, N-rays, etc.)
14–15	**Scientific Communication**: Peer review process (benefits and misuse); importance of controls and replication; replication crisis in modern science

Recommended Books:

1. McCracken, J. T. (2016). *The sciences: An integrated approach* (7th ed.). Pearson Education
2. Price, G. (2006). *Biology: An Illustrated Guide to Science*. Chelsea House Publishers.
3. Adams, S. (2019). *Essentials of Physics*. Mercury Learning and Information.
4. Strahler, A. N. *Science of Earth History: Evolution–Creation Controversy*

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Semester: 1st
Course Title: Principles of Microeconomics
Course Code: ECO-501

Weeks	Topics
1 & 2	**1. Introduction to Microeconomics** Definition of Economics by Adam Smith, Marshall, Lionel Robbins. What is Microeconomics. Scope and Subject matter of Microeconomics, Basic Economic questions, What to Produce? How to produce? How much to produce? and For whom to produce?
3, & 4	**2. Demand and Supply** Law of Demand, Change in Demand vs. Change in Quantity Demand, Price, Income and Cross Price Elasticity of Demand, Point and Arc Elasticity of Demand, Factors affecting elasticity of demand, Elasticity of Demand with Business relevance, Law of Supply, Kinds of Supply w.r.t Time, Change in Supply vs. Change in Quantity Supply, Price elasticity of Supply, Factors affecting elasticity of supply, Market Equilibrium, Effects on Market Equilibrium,
5, 6, & 7	**3. Consumer Behavior** Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility, Indifference curve: its slope and properties, Budget Line: its slope, rotation and shifting. Consumer's equilibrium according to Ordinal approach. Price Effect, Income Effect, and Substitution Effect (Considered Separately)
8, 9, &10	**4. Production, Cost and Revenue** **i) Production,** Factors of production, Technology of production, Production with one variable input (Laws of Returns and Law of Variable Proportions), Production with two variable inputs (Isoquant Curve Approach), Economies of scale. **ii) Cost:** Concept of cost and cost function, Kinds of Cost, Traditional theory of cost (Short run and long run) **iii) Revenue analysis:** Revenue analysis of the firms under perfect competition and imperfect competition, Relationship among AR, MR, TR and elasticity of demand.
11, 12, & 13	**5. Theory of Firm** **i) Perfect Competition** Assumptions, Equilibrium of firm under perfect competition in short-run and in long-run **ii) Monopoly** Assumptions, Equilibrium of firm under Monopoly in short-run and in long-run **iii) Monopolistic Competition** Assumptions, Equilibrium of firm under Monopolistic Competition in short-run and in long-run **iv) Characteristics of Oligopoly**
14 &15	**6. Factor Pricing** Marginal Productivity Theory, Modern Theory of Factor Pricing.

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Recommended Books

1. John Sloman, Alison Wride (2009). Economics 7th edition Seventh Edition, Pearson Education Limited.
2. Michael Parkins (2004) Economics 7th edition New York Addison Wesley
3. M. R. Sheikh and M.Z. Faridi (latest edition). Principles of Microeconomics, Target Publications Multan.

Further Suggested Readings

1. Dominick Salvatore (2004). Microeconomics theory and Applications. 4th edition New edition York Oxford University Press.
2. Colander C. David (2006). Economics. 6th edition Mc Graw. Hill international edition
3. Hailstone J. Thomas and Mastrianna V. Frank (2004). Basic Economics. 13th edition Thomson
4. Koustsoyiannis, A: A Modern Microeconomics, Macmillan.
5. Robert S Pindyck and Daniel L Rubinfeld. (2005). Microeconomics, Pearson Education Limited.
6. Colin Bamford. (2002). Economics, Cambridge.
7. John Jackson, Ron McIver (2006). Microeconomics, McGraw-Hill Education; 8th edition.

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Semester: 1st
Course Title: Issues in Pakistan Economy
Course Code: ECO-503

Weeks	Topics
1	**(1) Pakistan's Economy: At A Glance** **1.** Current State of the Economy **2.** Highlights of Pakistan's Economy
2 & 3	**(2) Agriculture Sector** **1.** Agriculture sector: Significance for Pakistan's Economy **2.** A brief evaluation of the agricultural sector (achievements and problems) **3.** Food Shortage Problem in Pakistan **4.** Current Policies of the Government for Agriculture development **5.** Agricultural Credit: Types, Sources and Problems
3 & 4	**(3) Industry Sector** 1. Industrial Sector: Significance for Pakistan's Economy 2. Principal manufacturing industries of Pakistan 3. Key issues in the industry in Pakistan 4. Industries Promotion Measures taken by Government
5, 6 &7	**(4) Social Sectors: Education and Health** **a) Education** 1. Education Sector: Significance for Pakistan Economy 2. Education System in Pakistan 3. Education Sector in Pakistan: Education by Level, Gender Differences, Physical Infrastructure 4. Major reforms and initiatives by Government for Education Sector **b) Health** 1. Health Sector: Significance for Pakistan's Economy 2. Health System in Pakistan 3. Health Sector in Pakistan: Healthcare Facilities, Health Programs, Health Infrastructure 4. Major reforms and initiatives by Government for Health Sector
8	**(5) Human Resources** 1. The quantitative and qualitative aspects of Pakistan's population 2. Importance of Manpower Planning 3. Human Capital Formation in Pakistan
9 & 10	**(6) Infrastructure: Energy and Transport & Communications** **a) Energy** 1. Energy Sector: Significance for Pakistan's Economy 2. Energy System in Pakistan 3. Energy crises in Pakistan 4. Major reforms and initiatives by Government for Energy Sector **b) Transport & Communications** **1.** Transport and Communication Sectors: Significance for

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	Pakistan's Economy **2.** Transport and Communication Systems in Pakistan **3.** Current Policies of the Government for Transport and communication sectors
11 & 12	**(7) Trade And Payments** **1.** Trade Sector: Significance for Pakistan's Economy **2.** Major Exports and Imports of Pakistan **3.** Trade promotion measures taken by the government **4.** Causes of Low Foreign Direct Investment (FDI) in Pakistan **5.** Balance of Payments **6.** Balance of Payments in Pakistan: Causes of deficit and solution.
13	**(8) Fiscal Sector** **1.** Budget: Meaning and formation **2.** Importance of Budget **3.** Characteristics of the current budget **4.** Comparison of the current budget with the previous budget
14 & 15	**(9) Current Economic Issues in Pakistan.** **1.** Poverty, inflation, environmental degradation, unemployment, FDI, Foreign Debt (Causes, remedial measures w.r.t Pakistan) **2.** Digitalization in Pakistan Economy. **3.** Uraan Pakistan Program

Recommended Books

1. Akbar S, Zaidi (1999). Issues in Pakistan Economy, Oxford University Press.
2. Khawaja Amjad Saeed (2007). Economy of Pakistan, Institute of Business Management, Lahore.
3. M.R Sheikh and M.Z. Faridi (Latest Edition). Pakistan Economy: Leading Issues, Target Publications Multan.
4. Ishrat Hussain (2018). Governing the Ungovernable: Institutional Reforms for Democratic Governance, Oxford University Press.
5. Michael. P Todaro (Latest Edition). Economic Development. Addison Wesley
6. Government of Pakistan, Pakistan Economic Survey (Latest Issues), Economic Advisor's Wing, Ministry of Finance, Islamabad.

Further Readings

1. Meenai, Asghar, (2002). *Banking and Finance in Pakistan*, Oxford University Press.
2. World Bank Reports on the suggested areas of study.
3. Quarterly and Annual Reports issued by the State Bank of Pakistan.
4. Website sources: http://www.finance.gov.pk, www.pbs.gov.pk https://www.psx.com.pk/ http://www.sbp.org.pk https://uraanpakistan.pk/

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Semester: 1st
Course Title: Understanding of Holy Quran-I
Course Code: QURAN-501

Weeks	Units	Lessons	Assignments/ Home Task	Linguistic Rules
1	1	1-8	Writing the meaning of Quranic words Lesson 1-8	Proper Noun Masculine & Feminine
	1	9-14	Writing the meaning of Quranic words 9-14	Two kinds of plural Concept of (و) "And" Common Noun
2	1	15-17	Writing the meaning of Quranic words, phrases & translation of Sentences 15-17	Demonstrative Noun (This & That for Masculine هذه مناء Demonstrative Noun (This & That for Feminine) تلك ذلك)
	1	18-19 & Revision (Unit 1)	Writing the meaning of Quranic words, phrases & translation of Sentences 17-19 **Quiz**	Laam for emphasis)لام التأكيد Superlative Degree like أكبر Revision of all Quranic Sentences
3	2	1-3	Writing the meaning of Quranic words, phrases & translation of Sentences 1-3	Emphatic Particle ان Preposition For")اللام Preposition)في(
	2	4-6	Writing the meaning of Quranic words, phrases & translation of Sentences 4-6	Preposition)على من إلى(
4	2	7-9	Writing the meaning of Quranic words & translation of Sentences 7-9	Preposition)الياء Absolute Negation Particle Exceptive Particle) (للجنس) (ما الثانية) (إلا) اعية
	2	10-13 & Revision (Unit 2)	Writing the meaning of Quranic words, phrases & translation of Sentences 10-13 **Quiz**	Subordinating Conjunction(as) Vocative Particle)حرف النداء
5	3	1-2	Writing the meaning of Quranic phrases 1-2	Quranic Adjective Compounds (صفة وموصوف)
	3	3-5	Writing the meaning of Quranic phrases & translation of sentences 3-5	Quranic Possessive Construction (مضاف ومضاف إليه)
6	3	6-7	Writing the meaning of Quranic phrase translation of sentences 6-7	Quranic Possessive Construction (مضاف ومضاف إليه)
	3	8-10 & Revision (Unit 3)	Writing the meaning of Quranic phrase & translation of sentences 8-10 **Quiz**	Active Participle اسم الفاعل Passive Participle)اسم المفعول Dual)مثنى(
7	4	1-2	Writing the meaning of Quranic phrase & translation of sentences	Personal Pronoun He المنفصل Possessive Pronoun His المتصل

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			1-2	
	4	3-4	Writing the meaning of Quranic phrase & translation of sentences 3-4	Possessive Pronoun with prepositions في like Pronoun "His" with prepositions like بيته له، منه، فيه
8	4	5-8	Writing the meaning of Quranic sentences 5-8	Personal Pronoun You انت المنفصل Possessive Pronoun Your المتصل Possessive Pronoun with prepositions في like بيتك Pronoun "your" with prepositions like لك، منك، فيك
	Mid Term			
9	4	9-12	Writing the meaning of Quranic phrases & sentences 9-12	Personal Pronoun She) هي المنفصل Possessive Pronoun Her ها المتصل Possessive Pronoun with prepositions في like بيتها Pronoun "Her" with prepositions like لهاء
	4	13-16	Writing the meaning of Quranic phrases & sentences 13-16	Personal Pronoun 1) أنا المنفصل Possessive Pronoun Her المتصل Possessive Pronoun with prepositions like في بيتي Pronoun "My" with prepositions like لي
10	4	17 & Revision Unit 4	Revision of all Quranic sentences of Unit 4 **Quiz**	Adverb)ح(
	5	1-2	Writing the meaning of Quranic phrases & sentences 1-2	Masculine Plural جمع المذكر السالم و جمع المذكر السالم المسبوق بحرف الجر
11	5	3-4	Writing the meaning of Quranic phrases & sentences 3-4	Possessive Construction with Plurals جمع المذكر السالم المسبوق بالإضافة
	5	5-6	Writing the meaning of Quranic phrases, sentences & verses. 5-6	Personal Pronoun They المنفصل Possessive Pronoun Their هم المتصل
12	5	7-8	Writing the meaning of Quranic phrases, sentences & verses 7-8	Possessive Pronoun with prepositions like في بيتهم Pronoun "Their" with prepositions likeلهم
	5	9-11	Writing the meaning of Quranic phrases, sentences & verses. 9-11	Personal Pronoun You) أنتم المنفصل Possessive Pronoun Your كم المتصل Possessive Pronoun with prepositions like في بيتكم

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13	5	12-14	Writing the meaning of Quranic phrases & sentences & verses 12-14	Pronoun "Your" with prepositions like لكم Personal Pronoun We) نحن المنفصل Possessive Pronoun Our نا المتصل
	5	15-16	Writing the meaning of Quranic sentences & verses 15-16	Possessive Pronoun with prepositions like Pronoun في بيتنا "Our" with prepositions likeلنا
14	5	17-18	Writing the meaning of Quranic sentences & Verses 17-18	Demonstrative Pronoun These, Those) هؤلاء أولئك
	5	19-23	Writing the meaning of Quranic sentences & Verses 19-23	ما / إلا إن / إلا إنما، ليس ما ، (أم أن يل، كان( ) ألا، أليس، اليوم، يومئذ، سبحان ما بينهما، قل، إذن، بنس، نعم، كلا ما أدراك، (حسب أعلم ب، مصير مرجع دينا (تمييز
15	5	Revision Unit 5	**Quiz**	
	6	1-3 (till Page 16)	Writing the meaning of Quranic Verbs &Translation of Quranic Sentences & Verses (1-3)	Introduction of Present فعل مضارع) Tense Verbal Sentence) جملة فعلية Present Tense الفعل المضارع صيغة المفرد يعلم
	6	3 (From Page 17) & 4-5	Translation of Quranic Sentences & Verses 3-5	Present Tense الفعل المضارع صيغة المفرد يعلم
	6	6	Translation of Quranic Sentences & Verses	Present Tense الفعل المضارع صيغة الجمع يعلمون

Recommended Books

1. Rahman, U. u. (n.d.). *Muallim ul Quran* (Vols. 1–3).
2. Safi, M. R. (2001). *Tafsir al-Mawrid: Commentary on the Quran*. Dar al-Kitab.
3. Asad, M. (1980). *The Message of the Quran*. Dar al-Andalus.
4. Al-Qurtubi, M. b. A. (1999). *Al-Jami' li-Ahkam al-Quran* (Tafsir al-Qurtubi). Dar al-Kutub al-Ilmiyya.
5. Ibn Kathir, I. (2000). *Tafsir Ibn Kathir* (Vols. 1–10). Dar al-Fikr.
6. Al-Tabari, M. J. (1989). *Jami' al-Bayan fi Tafsir al-Quran*. Dar al-Kutub al-Ilmiyya.
7. Abdul Haleem, M. A. S. (2004). *The Qur'an: A New Translation*. Oxford University Press.
8. Shabbir, M. Z. (2012). *Understanding the Quran: Themes and Insights*. Islamic Research Institute.
9. bdel Haleem, M. A. S. (2010). *The Qur'an: English Translation and Parallel Arabic Text*. Oxford University Press.
10. Saeed, A. (2006). *Interpreting the Qur'an: Towards a Contemporary Approach*. Routledge.
11. Helping material for the teachers like quizzes, question papers and images is available on website. https://muallimulquran.com

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SEMESTER

2

Course Code	Names of Courses	Category	Credit Hours
GED-502	Expository Writing	General-5	3 – Credit Hours
GED-504	Ideology and Constitution of Pakistan	General-6	2 – Credit Hours
GED-506	Pakistan Studies	General-8	2 – Credit Hours
SOG**	Social Sciences**	General-7: Social Sciences	2 – Credit Hours
ECO-502	Principles of Macroeconomics	Major-3	3 – Credit Hours
ECO-504	Population Economics	Major-4	3 – Credit Hours
QURAN-502	Understanding of Holy Quran-II	General-9	2 – Credit Hours
Total			17 Credit Hours

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Semester: 2nd
Course Title: Expository Writing
Course Code: GED-502

Weeks	Topics
1 & 2	**1- Introduction to Expository Writing** • Understanding expository writing (definition, types, purpose and applications) • Characteristics of effective expository writing (clarity, coherence and organization) • Introduction to paragraph writing
3, 4 & 5	**2- The Writing Process** • Pre-writing techniques (brainstorming, free-writing, mind-mapping, listing, questioning and outlining etc.) • Drafting (three stage process of drafting techniques) • Revising and editing (ensuring correct grammar, clarity, coherence, conciseness etc.) • Proof reading (fine-tuning of the draft) • Peer review and feedback (providing and receiving critique)
6 & 7	**3- Essay Organization and Structure** • Introduction and hook (engaging readers and introducing the topic) • Thesis statement (crafting a clear and focused central idea) • Body Paragraphs (topic sentences, supporting evidence and transitional devices) • Conclusion (types of concluding paragraphs and leaving an impact) • Ensuring cohesion and coherence (creating seamless connections between paragraphs)
8, 9 & 10	**4- Different Types of Expository Writing** • Description • Illustration • Classification • Cause and effect (exploring causal relationships and outcomes) • Process analysis (explaining step-by-step procedures) • Comparative analysis (analyzing similarities and differences)
11, 12 & 13	**5- Writing for Specific Purposes and Audiences** • Different types of purposes (to inform, to analyze, to persuade, to entertain etc.) • Writing for academic audiences (formality, objectivity, and academic conventions) • Writing for public audiences (engaging, informative and persuasive language) Different tones and styles for specific purposes and audiences

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14 & 15	**6- Ethical Considerations** • Ensuring original writing (finding credible sources, evaluating information etc.) • Proper citation and referencing (APA, MLA, or other citation styles) • Integrating quotes and evidence (quoting, paraphrasing, and summarizing) • Avoiding plagiarism (ethical considerations and best practices)

Recommended Books

1. Axelrod, R. B., & Cooper, C. R. (2021). *The St. Martin's guide to writing* (13th ed.). Bedford/St. Martin's.
2. Graff, G., & Birkenstein, C. (2021). *They say / I say: The moves that matter in academic writing* (5th ed.). W. W. Norton & Company.
3. Rosenwasser, D., & Stephen, J. (2023). *Writing analytically* (9th ed.). Cengage Learning.
4. Williams, J. M., & Bizup, J. (2021). *Style: Lessons in clarity and grace* (13th ed.). Pearson.
5. Strunk, W., Jr., & White, E. B. (1959). *The elements of style* (3rd ed.). Macmillan.
6. Faigley, L., & Selzer, J. (2018). *Good reasons with contemporary arguments* (2nd ed.). Pearson.
7. Zinsser, W. (2013). *Writing to learn: How to write — and think — clearly about any subject at all*. Harper Perennial.
8. Bullock, R. H., Goggin, M. D., & Weinberg, F. (2022). *The Norton field guide to writing* (6th ed.). W. W. Norton & Company.
9. Longknife, A., Sullivan, K. D., & Waddell, M. L. (2007). *The art of styling sentences*. Barron's Educational Series.
10. Johnson-Sheehan, R., & Paine, C. (2013). *Writing today*. Pearson.



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Semester: 2nd
Course Title: Ideology and Constitution of Pakistan
Course Code: GED-504

Weeks	Topics
1, 2 & 3	**1- 1ntroduction to the Ideology of Pakistan** • Definition and significance of ideology. Historical context of the creation of Pakistan (with emphasis on socio-political. religious, and cultural dynamic of British India between 1857 till 1947). • Contributions of founding fathers of Pakistan in the freedom movement including but not Limited to Allama Muhammad Iqbal, Muhammad Ali Jinnah etc., Contributions of' women and students in the freedom movement for separate homeland for Muslims of British India.
4 & 5	**2- Two-Nation Theory** • Evolution of the Two-Nation Theory (Urdu-Hindi controversy, Partition of Bengal, Shimla Deputation 1906) Allama Iqbal's presidential address 1930, congress ministries 1937 Lahore resolution 1940) • Role of Communalism and religious differences.
6 & 7	**3- Introduction to the Constitution of Pakistan** • Definition and importance of a constitution. Ideological factors that shaped the constitution(s) of Pakistan (Objectives Resolution 1949). Overview of constitutional developments in Pakistan.
8 & 9	**4- Constitution and State Structure** • Structure of government (executive, legislature and judiciary). • Distribution of powers between federal and provincial governments. • 18th Amendment and its impact on federalism.
10, 11 & 12	**5- Fundamental Rights, Principles of policy and Responsibilities** • Overview of fundamental rights guaranteed to citizens by the constitution of Pakistan 1973 (Articles 8-28). Overview of principles of policy (Articles 29-40) • Responsibilities of the Pakistani citizens (Article 5)
13 & 14	**6- Constitutional Amendments** • Procedures for amending the constitution. • Notable constitutional amendments and their implications.

Recommended Books:

1. Ahmed, A. S. (1997). *Jinnah, Pakistan and Islamic identity: The search for Saladin*. Routledge.
2. Aziz, I. H. K. (1976). *The making of Pakistan: A study in nationalism*. Oxford University Press.
3. Choudhury, G. W. (1963). *Constitutional development in Pakistan*. Longmans.
4. Choudhury, G. W. (1974). *Constitution-making in Pakistan: The dynamics of political order*. Oxford University Press.

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5. Cohen, S. P. (2004). *The idea of Pakistan*. Brookings Institution Press
6. Jalal, A. (1994). *The struggle for Pakistan: A Muslim homeland and global politics*. Harvard University Press.
7. Khan, H. (2005). *Constitutional and political development of Pakistan*. Oxford University Press.
8. Mahmood, S. (1996). *Pakistan: Political roots and development*. Oxford University Press.
9. Mujahid, S.-U. (1990). *Ideology of Pakistan*. Maktaba-i-Islamia.
10. Qureshi, I. H. (1965). *The struggle for Pakistan*. Karachi: University of Karachi.
11. Sayeed, W. B. (1968). *Pakistan: The formative phase*. Oxford University Press.
12. Talbot, I. (2009). *Pakistan: A new history*. Hurst & Company.
13. Ziring, L. (1997). *Pakistan in the twentieth century: A political history*. Oxford University Press.
14. Iqbal, J. (1980). *Ideology of Pakistan*. Islamic Publications.
15. Hussain, M. (1988). *The parliament of Pakistan*. Royal Book Company.
16. Constitution of Pakistan. (1973). *Constitution of the Islamic Republic of Pakistan*.

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Semester: 2nd
Course Title: Pakistan Studies
Course Code: GED-506

Week	Topics
1	Introduction to Pakistan Studies & Historical Perspective
2	Ideological Rationale – Role of Sir Syed Ahmed Khan
3	Ideological Rationale – Philosophy of Allama Muhammad Iqbal
4	Ideological Rationale – Leadership of Quaid-i-Azam Muhammad Ali Jinnah
5	Factors Leading to Muslim Separatism
6	People and Land – Indus Civilization
7	Muslim Advent in Subcontinent
8	Location and Geo-Physical Features of Pakistan
9	Government & Politics (1947–1958) – Early Constitutional Development
10	Political Phase (1958–1971) – Martial Law & Separation of East Pakistan
11	Political Phase (1971–1977) – Constitution of 1973 & Democratic Era
12	Political Phase (1977–1988) & (1988–1999) – Islamization & Democratic Transition
13	Political Phase (1999 onward) – Contemporary Political Developments
14	Contemporary Pakistan – Economic Institutions, Society, Social Structure & Ethnicity
15	Foreign Policy of Pakistan, Challenges & Futuristic Outlook of Pakistan

Recommended Books

1. Ahmed, A. (1967). *Islamic modernism in India and Pakistan 1857–1964*. Oxford University Press.
2. Afzal, M. R. (1998). *Political parties in Pakistan* (Vols. I–III). National Institute of Historical and Cultural Research.
3. Amin, T. (n.d.). *Ethno-national movement in Pakistan*. Institute of Policy Studies.
4. Aziz, K. K. (1976). *Party politics in Pakistan*. National Commission on Historical and Cultural Research.
5. Burke, S. M., & Ziring, L. (1993). *Pakistan's foreign policy: An historical analysis*. Oxford University Press.
6. Dani, A. H. (1991). *History of Pakistan: Pakistan through ages*. Sang-e-Meel Publications.
7. Haq, N. U. (1993). *Making of Pakistan: The military perspective*. National Commission on Historical and Cultural Research.
8. Ikram, S. M. (1995). *Modern Muslim India and the birth of Pakistan*. Institute of Islamic Culture.
9. Iqbal, M. (2013). *The reconstruction of religious thought in Islam*. Stanford University Press. (Original work published 1930)
10. Jalal, A. (1995). *Democracy and authoritarianism in South Asia*. Cambridge University Press.

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11. Jinnah, M. A. (2000). *Speeches and statements of Quaid-i-Azam Mohammad Ali Jinnah*. Oxford University Press.
12. Mehmood, S. (1994). *Pakistan political roots & development*.
13. Mehmood, S. (n.d.). *Pakistan kayyun toota*. Idara-e-Saqafat-e-Islamia.
14. Qureshi, I. H. (1962). *The Muslim community of the Indo-Pakistan subcontinent (610–1947)*. Mouton.
15. Qureshi, I. H. (1977). *A short history of Pakistan*. University of Karachi Press.
16. Rizvi, H. A. (2019). *Pakistan and the geopolitics of South Asia*. Sang-e-Meel Publications.
17. Sayeed, K. B. (1967). *The political system of Pakistan*. Houghton Mifflin.
18. Shah, A. (2014). *The army and democracy: Military politics in Pakistan*. Harvard University Press.
19. Talbot, I. (1998). *Pakistan: A modern history*. St. Martin's Press.
20. Waseem, M. (1987). *Pakistan under martial law*. Vanguard.
21. Wilcox, W. (1972). *The emergence of Bangladesh*. American Enterprise Institute of Public Policy Research.
22. Zaidi, S. A. (2015). *Issues in Pakistan's economy* (3rd ed.). Oxford University Press.
23. Zahid, A. (1980). *History & culture of Sindh*. Royal Book Company.
24. Ziring, L. (1980). *Enigma of political development*. Wm Dawson & Sons Ltd.
25. Ziring, L. (2005). *Pakistan in the twentieth century: A political history*. Oxford University Press

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Semester: 2nd
Course Title: Principles of Macroeconomics
Course Code: ECO-502

Weeks	Topics
1	**1- Introduction to Macroeconomics** **1.** What is Macroeconomics, Nature and Scope of Macroeconomics **2.** Macroeconomic goals **3.** Macroeconomic policies **4.** Components of macroeconomics
2 & 3	**2- National Income Accounting** **1.** Concept of Gross Domestic Product • Intermediate Goods and Services • Final Goods and Services • Capital Goods **2.** Measuring approaches of GDP, value addition application, income approach, expenditure approach **3.** National Income Aggregates (GNP, GDP, NNP, PI, DPI) **4.** Circular flow of national income
4, 5 & 6	**3- Productivity, Output and Employment** **1.** Production function: Average and Marginal Productivity of Factors, Productivity Shocks **2.** Demand for Labour: Derivation of labour Demand Curve, Shifting Factors of labour Demand Curve **3.** Supply of Labour: Derivation of labour Supply Curve, Shifting Factors of labour Supply Curve **4.** Labour market equilibrium: Assumptions and Effects of Supply Shocks
7 & 8	**4- Consumption and Savings** **1.** Concept of Consumption and consumption function, APC, MPC **2.** Keynesian psychological law of consumption, Assumptions, Implications **3.** Concept of Savings and saving function, APS, MPS **4.** Relationship between APC, MPC, APS and MPS **5.** Determinants of consumption function.
9 & 10	**5- Theory of Investment** **1.** Concept and definition of investment **2.** Components of Investment **3.** Types of Investment **4.** Investment function **5.** Marginal Efficiency of Capital (MEC) and Marginal Efficiency of Investment (MEI) **6.** Determination of Investment **7.** Determinants of Marginal Efficiency of Capital **8.** Desired stock of capital and its investment **9.** Acceleration Principle- Rigid accelerator model

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	10. Importance of investment
11 & 12	**6- Good Market Equilibrium** 1. Goods Market Equilibrium in Closed Economy • Effects on Goods Market Equilibrium: Changes in Saving and investment curves • Numerical Example **2.** Savings and investment in open economy **3.** Balance of payments accounting **4.** Goods market equilibrium in an Open economy **5.** Saving investment in a small open economy **6.** Saving investment in large open economy
13 & 14	**7- Determination of Equilibrium Level of National Income and Output** 1. Basic Keynesian Macro model • Aggregate Income Expenditure Approach • Saving and Investment Approach 2. The concept of Multiplier 3. Inflationary and deflationary gaps 4. Paradox of Thrift
15	**8- Unemployment and Inflation** • Unemployment: Definition, Measurement, Types and Natural Rate of unemployment • Inflation: Definition, Measurement, Causes of Inflation (cost push inflation, demand pull inflation), Effects of inflation, Anti-Inflationary Measures • Concept of Phillips curve (Short run and Long Run), • Money, Functions of money, Quantity theory of money (QTM).

Recommended Books

1. Abel, A. B., & Bernanke, B. S. (2005). *Macroeconomics* (5th ed.). Pearson.
2. Parkin, M. (2022). *Macroeconomics* (Global ed.). Pearson Education.
3. DeLong, C. D., & Ekelund, R. B., Jr. (n.d.). *Macroeconomics* (Subsequent ed.). Business Publications.
4. Mankiw, N. G. (2018). *Macroeconomics* (10th ed.). Worth Publishers.
5. Samuelson, P. A., & Nordhaus, W. D. (1997). *Macroeconomics* (16th ed.). McGraw-Hill.
6. Faridi, M. Z., & Sheikh, M. R. (n.d). *Principles of macroeconomics* (Latest ed.). Target Publications.

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Semester: 2nd
Course Title: Population Economics
Course Code: ECO-504

Weeks	Topics
1 & 2	**1. Introduction** 1. Meaning and nature of population economics 2. Scope and importance 3. Demographic indicators: concepts and measurement
3, 4, 5 & 6	**2. Theories of population** 1. Malthusian theory: assumptions, features, criticism 2. Optimum theory of population: explanation, comparison, and criticism 3. Karl Marx's theory of relative surplus population 4. Leibenstein's economic theory of population 5. Gary Becker's economic theory of fertility
7 & 8	**3. Population growth and Economic development** 1- Population growth past, present and future. • Structure of world population • The Hidden momentum of population growth 2- The demographic transition. 3- The theory of demographic transition modern theory of population (effects of economic growth on population) 4- The causes of high fertility in developing economics and Pakistan
9 & 10	1- Nelson's low level of equilibrium trap. 2- The Malthusian population trap. 3- The micro-economic household theory of fertility. 4- Determinants of birth rate – demand for children in developing countries. 5- The consequences of high fertility some conflicting arguments. (i) It is not a real problem (ii) It is a desirable phenomenon. (iii) It is a real problem (iv) Negative consequences of population growth. (v) Goals and objectives towards the consequences. 6- Some policy approaches.
11 & 12	**4. Urbanization and migration** 1- The concept and nature of urbanization, Urbanization trends and problems 2- Migration meanings and concepts. Types of migration, Motives and factors encouraging migration, pull factors and push factors. 3- Factors discouraging migration. 4- General effects of migration.

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13	5- Migration and population growth, migration as a substitute for birth control. 6- Internal migration and Factors determining internal migration 7- Models of internal migration a) E.G. Ravenstein model. b) Lee model. c) Lewis model of unlimited supply of labour, assumptions drawbacks and limitations. 8- Internal migration: Brain migration (i) Brain drain, Brain outflow Policy implications. (ii) Effect of brain migration
14 & 15	**5. Human Capital Formation** 1- Meanings and importance 2- Indications of human capital formation. 3- Measuring the contribution of human capital formation. 4- Problems and issues in human capital formation.

Recommended Books

1. Weeks, J. R. (2021). *Population: An introduction to concepts and issues* (13th ed.). Cengage Learning.
2. Thirlwall, A. P. (2019). *Economic development* (9th ed.). Palgrave Macmillan.
3. Todaro, M. P., & Smith, S. C. (2020). *Economic development* (12th ed.). Pearson.
4. Ghatak, S. (1986). *An introduction to development economics*. Allen & Unwin Hyman.
5. Ghosh, B. N. (2015). *Population economics*. Deep & Deep Publications.
6. Faridi, M. Z., & Sheikh, M. R. (n.d.). *Population economics* (Latest ed.). Target Publications.

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Semester: 2nd
Course Title: Understanding of Holy Quran-II
Course Code: QURAN-502

Weeks	Units	Lessons	Assignments/ Home Task	Linguistic Rules
1	6	6	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر غائب مثل يعبدون
	6	7-8	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر غائب مثل يعبدون
2	6	9-10	Understanding & Translation of Verses	Present Tense صيغة مفرد مذكر مخاطب (تعبد) وجمع مذكر مخاطب (تعبدون)
	6	11-12	Understanding & Translation of Verses	Present Tense صيغة جمع مذكر مخاطب (تعبدون) صيغة المتكلم (أعبد)
3	6	13	Understanding & Translation of Verses	Present Tense صيغة جمع المتكلم (نعيد)
	6	14-15	Understanding & Translation of Verses	Negative Imperative صيغة المفرد وصيغة الجمع لا تعبد لا تعبدوا
4	6	16-17	Understanding & Translation of Verses	Conditional Sentences & masdar moawal مووّل (مصدر))
	6	18-19	Understanding & Translation of Verses	Laam uttaleel (لام التعليل)Laam ul jhood (لام الجحود)
5	6	20-21	Understanding & Translation of Verses	Present with object pronouns & Passive Voice
	6	Revision (Unit 6)	**Quiz**	
6	7	1 (sec 1-3)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
	7	1 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب

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7	7	1 (sec 5-6)	Understanding & Translation of Verses	Past Tense صیغة المفرد الغائب
	7	1 (sec 7-9)	Understanding & Translation of Verses	Past Tense صیغة المفرد الغائب
8	7	Revision	Understanding & Translation of Verses **Quiz**	Past Tense صیغة المفرد الغائب
	Mid Term			
9	7	2 (sec 1-2)	Understanding & Translation of Verses	Past Tense صیغة الجمع للغائب عبدوا
	7	2 (sec 3)	Understanding & Translation of Verses	Past Tense صیغة الجمع للغائب عبدوا
10	7	2 (sec 4-5)	Understanding & Translation of Verses	Past Tense صیغة الجمع للغائب عبدوا
	7	2 (sec 6-7)	Understanding & Translation of Verses	Past Tense صیغة الجمع للغائب عبدوا
11	7	3 (sec 1-2)	Understanding & Translation of Verses	Past Tense صیغة الجمع للمتکلم عبدنا
	7	3 (sec 2-3)	Understanding & Translation of Verses	Past Tense صیغة الجمع للمتکلم عبدنا
12	7	3 (sec 3-4)	Understanding & Translation of Verses	Past Tense صیغة الجمع للمتکلم عبدنا
	7	3 (sec 4-5)	Understanding & Translation of Verses	Past Tense صیغة الجمع للمتکلم عبدنا
13	7	4 (sec 1-2-3)	Understanding & Translation of Verses	Past Tense صیغه الجمع للمخاطب عبدتم
	7	4 (sec 4-5)	Understanding & Translation of Verses	Past Tense صیغه الجمع للمخاطب عبدتم
14	7	5-6	Understanding & Translation of Verses	Past Tense صیغه المتکلم والمخاطب عبدتُ عبدتَ

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	7	7	Understanding & Translation of Verses **Quiz**	Past Tense صيغة المؤنث للغائب عبدت
15	7	8	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول للمفرد
	7	9	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول الجمع
16	8	1-4	Understanding & Translation of Verses	Imperative Verb for singular فعل الأمر للمفرد
	8	5-8	Understanding & Translation of Verses	Imperative Verb for plural فعل الأمر للجمع

Recommended Books

1. Rahman, U. u. (n.d.). *Muallim ul Quran* (Vols. 3–5).
2. Safi, M. R. (2001). *Tafsir al-Mawrid: Commentary on the Quran*. Dar al-Kitab.
3. Asad, M. (1980). *The Message of the Quran*. Dar al-Andalus.
4. Al-Qurtubi, M. b. A. (1999). *Al-Jami' li-Ahkam al-Quran* (Tafsir al-Qurtubi). Dar al-Kutub al-Ilmiyya.
5. Ibn Kathir, I. (2000). *Tafsir Ibn Kathir* (Vols. 1–10). Dar al-Fikr.
6. Al-Tabari, M. J. (1989). *Jami' al-Bayan fi Tafsir al-Quran*. Dar al-Kutub al-Ilmiyya.
7. Abdul Haleem, M. A. S. (2004). *The Qur'an: A New Translation*. Oxford University Press.
8. Shabbir, M. Z. (2012). *Understanding the Quran: Themes and Insights*. Islamic Research Institute.
9. bdel Haleem, M. A. S. (2010). *The Qur'an: English Translation and Parallel Arabic Text*. Oxford University Press.
10. Saeed, A. (2006). *Interpreting the Qur'an: Towards a Contemporary Approach*. Routledge.
11. Helping material for the teachers like quizzes, question papers and images is available on website. https://muallimulquran.com

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SEMESTER

3

Course Code	Names of Courses	Category	Credit Hours
GED-507	Civics and Community Engagement	General-10	2 – Credit Hours
GED-509	Quantitative Reasoning-I	General-11	3 – Credit Hours
GED-511	Applications of Information and Communication Technologies (ICT)	General-12	3 – Credit Hours
ECO-505	Microeconomic Theory – I	Major-5	3 – Credit Hours
ECO-507	Development Economics: Concepts and Theories	Major-6	3 – Credit Hours
ECO-509	Islamic Economics	Major-7	3 – Credit Hours
Total			**17 Credit Hours**

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Semester: 3rd
Course Title: Civics and Community Engagement
Course Code: GED-507

Weeks	Topics
1 & 2	**1. Civics and Citizenship** • Concepts of civics, citizenship, and civic engagement. • Foundations of modern society and citizenship. • Types of citizenship: active, participatory, digital, etc.
3, 4	**2. State, Government and Civil Society** • Structure and functions of government in Pakistan. • The relationship between democracy and civil society. • Right to vote and importance of political participation and representation.
5 & 6	**3. Rights and Responsibilities** • Overview of fundamental rights and liberties of citizens under Constitution of Pakistan 1973. • Civic responsibilities and duties. • Ethical considerations in civic engagement (accountability, non-violence, peaceful dialogue, civility, etc.)
6 & 7	**4. Community Engagement** • Concept, nature and characteristics of community. • Community development and social cohesion. • Approaches to effective community engagement. • Case studies of successful community driven initiatives.
8, 9 & 10	**5. Advocacy and Activism** • Public discourse and public opinion. • Role of advocacy in addressing social issues. • Social action movements.
11, 12 & 13	**6. Digital Citizenship and Technology** • The use of digital platforms for civic engagement. • Cyber ethics and responsible use of social media. • Digital divides and disparities (access, usage, socioeconomic, geographic, etc.) and their impacts on citizenship.
14 & 15	**7. Diversity, Inclusion and Social Justice** • Understanding diversity in society (ethnic, cultural, economic, political etc.). • Youth, women and minorities' engagement in social development. • Addressing social inequalities and injustices in Pakistan. • Promoting inclusive citizenship and equal rights for societal harmony and peaceful co- existence.

Recommended Books

1. McGraw-Hill Education. (2007). *Civics today: Citizenship, economics, & you*. McGraw-Hill Education.

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2. Kymlicka, W., & Norman, W. (2000). *Citizenship in diverse societies*. Oxford University Press.
3. Youniss, J., & Levine, P. (2009). *Engaging young people in civic life*. Vanderbilt University Press.
4. Mattson, K. (2018). *Digital citizenship in action: Empowering students to engage in online communities*. Corwin.
5. Pike, G., & Selby, D. (2014). *Globalization and citizenship: In the pursuit of a cosmopolitan education*. Routledge.
6. Feldpausch, B. J., & Omilian, S. M. (2020). *Community engagement: Principles, strategies, and practices*. Routledge.
7. Clarke, M., & Steckel, M.-M. (2019). *Creating social change: A blueprint for a better world*. Routledge.

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Semester: 3rd
Course Title: Quantitative Reasoning-I
Course Code: GED-509

Weeks	Topics
1 & 2	**1. Numerical Literacy** • Number system and basic arithmetic operations • Units and their conversions, dimensions, area, perimeter and volume;
3 &4	• Rates, ratios, proportions and percentages • Types and sources of data • Measurement scales
5 & 6	• Tabular and graphical presentation of data • Quantitative reasoning exercises using number knowledge.
6 & 7	**2. Fundamental Mathematical Concepts** • Basics of geometry (lines, angles, circles, polygons etc.) • Sets and their operations
8, 9 & 10	• Relations, functions, and their graphs • Exponents, factoring and simplifying algebraic expressions • Algebraic and graphical solutions of linear and quadratic equations and inequalities • Quantitative reasoning exercises using fundamental mathematical concepts.
11, 12 & 13	**3. Fundamental Statistical Concepts** • Population and sample • Measures of central tendency, dispersion and data interpretation • Rules of counting (multiplicative, permutation and combination)
14 & 15	• Basic probability theory • Introduction to random variables and their probability distributions

Recommended Books

1. Madison, B. L., Steen, L., & Madison, A. (2002). *Quantitative reasoning: Tools for today's informed citizen*. Pearson.
2. Madison, B. L., & Bressoud, D. M. (2015). *Quantitative reasoning for the information age* (2nd ed.). Pearson.
3. Ellis, W. (2010). *Fundamentals of mathematics*.
4. Zaslow, E. (2017). *Quantitative reasoning: Thinking in numbers*. W. W. Norton & Company.
5. Bueno de Mesquita, E., & Fowler, A. (2017). *Thinking clearly with data: A guide to quantitative reasoning and analysis*. Princeton University Press.
6. Bennett, J. O., Briggs, W. L., & Badalamenti, A. (2019). *Using and understanding mathematics: A quantitative reasoning approach* (7th ed.). Pearson.
7. Rosen, K. H. (2018). *Discrete mathematics and its applications*, McGraw-Hill Education.
8. Chatfield, C. (2008). *Statistics: A course in applied statistics* (4th ed.). Chapman & Hall/CRC.
9. Lock, R. H., Lock, P. F., Morgan, K. L., & Lock, E. F. (2017). *Statistics: Unlocking the power of data* (2nd ed.). Wiley

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Semester: 3rd

Course Title: Applications of Information and Communication Technologies (ICT)

Course Code: GED-511

Weeks	Topics
1 & 2	**1. Introduction to Information and Communication Technologies** • Components of Information and Communication Technologies (basics of hardware, software, ICT platforms, networks, local and cloud data storage etc.). • Scope of Information and Communication Technologies (use of ICT in education, business, governance, healthcare, digital media and entertainment, etc.). • Emerging technologies and future trends.
3 &4	**2. Basic ICT Productivity Tools** • Effective use of popular search engines (e.g., Google, Bing, etc.) to explore World Wide Web. • Formal communication tools and etiquettes (Gmail, Microsoft Outlook, etc.). • Microsoft Office Suites (Word, Excel, PowerPoint). • Google Workspace (Google Docs, Sheets, Slides). • Dropbox (Cloud storage and file sharing), Google Drive (Cloud storage with Google Does integration) and Microsoft OneDrive (Cloud storage with Microsoft Office integration). • Evernote (Notetaking and organization applications) and OneNote (Microsoft's digital notebook for capturing and organizing ideas), • Video conferencing (Google Meet, Microsoft- Teams, Zoom, etc.). • Social media applications (LinkedIn, Facebook, Instagram, etc.).
5 & 6	**3. ICT in Education** • Working with learning management systems (Moodie, Canvas, Google Classrooms, etc.). • Sources of online education courses (Coursera, edX, Udemy, Khan Academy, etc.). • Interactive multimedia and virtual classrooms.
6 & 7	**4. ICT in Health and Well-being** • Health and illness tracking devices and applications (Google Fit, Samsung Health, Apple Health, Xiaomi Mi Band, RunKeeper, etc.). • Telemedicine and online health consultations (OLADOC, Sehat Kahani, Marham, etc.).
8, 9 & 10	**5. ICT in Personal Finance and Shopping** • Online banking and financial management tools (Jazz Cash, Easypaisa, Zong PayMax, I LINK and MNET, Keenu Wallet, etc.). • E-commerce platforms (Daraz.pk, Telemart, Shophive, etc.)

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11, 12 & 13	**6. Digital Citizenship and Online Etiquette** • Digital identity and online reputation. • Netiquette and respectful online communication. • Cyberbullying and online harassment.
14 & 15	**7. Ethical Considerations in Use of 1CT Platforms and Tools** • Intellectual property and copyright issues. • Ensuring originality in content creation by avoiding plagiarism and unauthorized use of information sources. • Content accuracy and integrity (ensuring that the content shared through ICT platforms is free from misinformation, fake news, and manipulation).

Practical Requirements

As part of the overall learning requirements, the course will include:

1. Guided tutorials and exercises to ensure that students are proficient in commonly used software applications such as word processing software (e.g., Microsoft Word), presentation software (e.g., Microsoft PowerPoint), spreadsheet software (e.g., Microsoft Excel) among such other tools. Students may be assigned practical tasks that require them to create documents, presentations, and spreadsheets etc.
2. Assigning tasks that involve creating, managing, and organizing files and folders on both local and cloud storage systems. Students will practice file naming conventions, creating directories, and using cloud storage solutions (e.g., Google Drive, OneDrive).
3. The use of online learning management systems (LMS) where students can access course materials, submit assignments, participate in discussion forums, and take quizzes or tests. This will provide students with practical experience with online platforms commonly used in education and the workplace.

Recommended Books

1. Vermaat, M. E., Shaffer, C., & Freund, K. (2021). *Discovering computers* (2021 ed.). Cengage Learning.
2. Gaskin, S., Vargas, J., & McLellan, J. (2020). *GO! with Microsoft Office* (2020 ed.). Cengage Learning.
3. Grauer, R., & Poatsy, M. (2019). *Exploring Microsoft Office* (2019 ed.). Cengage Learning.
4. Morley, D., & Parker, C. S. (2020). *Computing essentials* (2020 ed.). McGraw-Hill Education.
5. Evans, D., Martin, J., & Poatsy, M. (2020). *Technology in action* (2020 ed.). Pearson.



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Semester: 3rd
Course Title: Microeconomic Theory – I
Course Code: ECO-505

Week	Topics
1 & 2	**Market Dynamics, Demand Analysis, and Price Adjustment** • Total Revenue, Marginal Revenue and Elasticity of demand • Constant elasticity demand function (CEDF) • Disequilibrium Prices in Goods and Factors Markets • Network Externalities: Bandwagon effect and Snob Effect • Hog Cycle • Cob-Web model
3 & 4	**Theory of consumer behavior** The cardinal and ordinal utility theories (consumer equilibrium conditions graphically and mathematically).
5	Analysis of price, income, and substitution effects for normal, inferior and Giffen goods, using the Marshallian, Hicksian, and Slutsky approaches, along with their corresponding demand curves. Revealed preferences Hypothesis Consumer Surplus
6	**Theory of Production** • Equilibrium of the firm: choice of optimal combination of factors of production: Single decision of the firm, Choice of optimal expansion path (Both cases with graphic and mathematical versions) • Laws of Returns to Scale
7	• Cobb-Douglas Production function • Technological progress and production Function • Derivation of cost functions from Production functions (Graphically)
8	**Theory of Cost** The traditional theory of cost (Short-Run and Long-Run behavior) Modern theory of cost (Short-run and long-run Behavior) Theory of engineering cost (Short- Run and Long-Run behavior)
9 & 10	**Perfect competition** Perfect competition, assumptions, short run equilibrium, mathematical condition of firm's equilibrium. The supply curve of the firm and industry. Long-Run equilibrium of firm.
11	Equilibrium of the industry in the long-Run Dynamic changes and industry equilibrium i) A shift in market demand ii) A shift in the costs following changes in the factor's prices. iii) Imposition of a tax by government

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12	**Monopoly** Definition, Demand and Revenue (Mathematical Relationship) Equilibrium of the monopolist in the short run (Graphical, mathematical and numerical interpretation) Does Supply curve exist under Monopoly? Equilibrium of the monopolist in the long run
13	Predictions of the Monopoly Model in dynamic situations i) Shift in the market demand ii) An increase in the costs of Monopolists Comparison of pure competition and Monopoly
14 & 15	The multi-Plant Firm (Mathematical, Graphical and Numerical analysis) Bilateral Monopoly, Price discrimination (I, II and III degrees). Effects of price discrimination. (Mathematical and numerical explanation) Price discrimination and price elasticity of Demand.

Recommended Books

1. Koutsoyiannis, A. (1979). *Modern microeconomics* (2nd ed.). Macmillan Education.
2. Bilas, R. A. (1971). *Microeconomic theory* (2nd ed.). McGraw-Hill.
3. M. R. Sheikh and M.Z. Faridi (latest edition). Microeconomic Theory-I, Target Publications Multan.
4. Pindyck, R. S., Rubinfeld, D. L., & Mehta, P. L. (2004). *Microeconomics* (6th ed.). Pearson Education.

Additional Readings

1. Henderson, J. M., & Quandt, R. E. (1958). *Microeconomic theory* (2nd ed.). McGraw-Hill.
2. Varian, H. R. (1992). *Microeconomic analysis* (3rd ed.). W. W. Norton & Company.
3. Ferguson, C. E., & Gould, J. P. (n.d.). *Microeconomic theory* (latest ed.).
4. Layard, R., & Walters, A. A. (n.d.). *Microeconomics* (latest ed.).
5. Nicholson, W. (2017). *Microeconomic theory: Basic principles and extensions* (12th ed.). Cengage Learning.

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Semester: 3rd
Course Title: Development Economics: Concepts and Theories
Course Code: ECO-507

Weak	Topics
1	**1.** What Do We Mean by Development? • Traditional Economic Measures • The New Economic View of Development • Amartya Sen's "Capability" Approach • Development and Happiness • Three Core Values of Development • The Central Role of Women • The Three Objectives of Development **2.** Economic Development & Economic Growth
2 & 3	**1.** Sustainable Development Goals (SDGs) **2.** Defining the Developing World **3.** Basic Indicators of Development: Real Income, Health, and Education • Purchasing Power Parity • Indicators of Health and Education **4.** Holistic Measures of Living Levels and Capabilities • Physical Quality Life Index (PQLI) • Human Development Index (Old and New)
4	**1.** Characteristics of Developing Countries **2.** Obstacles to Economic Development
5	**1. Linear Growth Theories** Rostow's stages of Economic Growth Harrod-Domar Growth Model
6	**2. Structural Change Models** The Lewis Theory of Economic Development
7 & 8	**3. The International Dependence Revolution** The Neocolonial Dependence Model The False Paradigm Model The Dualistic Development Thesis
9 & 10	**4. The Neo-Classical Counter Revolution** Free-market approach Public-choice (or "new political economy") approach Market-friendly" approach
11	**1.** Big Push Theory **2.** Balanced and Unbalanced Economic Growth Theory
12	**3.** Michael Kremer O-Ring Theory of Economic Development **4.** The Hausman-Rodrik-Velasco Growth Diagnostic Framework

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13	**Poverty, Inequality and Development** **1. Measurement of Inequality** Size Distribution Lorenz Curve Gini Coefficient and Aggregate Measures of Inequality Functional Distributions Ahluwalia – Chenery Welfare Index (ACWI)
14	**2. Measurement of Absolute Poverty** Income Poverty: Headcount Ratio (HCR), Total and Average Poverty Gaps FGT Index, Person-Equivalent Headcount (PEH) Multidimensional Poverty Index (MDPI)
15	Inequality and Social Welfare Kuznets' Inverted - U Hypothesis Vicious Circle of Poverty

Recommended Books

1. Todaro, M. P., & Smith, S. C. (2020). *Economic development* (13th ed.). Pearson.
2. Perkins, D. H., Radelet, S., Lindauer, D. L., & Block, S. A. (2013). *Economics of development* (7th ed.). W. W. Norton
3. M. R. Sheikh and M.Z. Faridi (latest edition). Development Economics: Concepts and Theories, Target Publications Multan.

Additional Readings

1. Balasubramanyam, V. N., & Lall, S. (1991). *Current issues in development economics*. Red Globe Press.
2. Chenery, H. B., & Srinivasan, T. N. (Eds.). (1988). *Handbook of development economics* (Vols. 1 & 2). Elsevier.
3. Ghatak, S. (1986). *An introduction to development economics*. Allen & Unwin.
4. Kindleberger, C. P., & Herrick, B. (1977). *Economic development* (3rd ed.). McGraw-Hill.
5. Jones, H. G. (n.d.). *An introduction to modern theories of economic growth*. McGraw-Hill.
6. Hirschman, A. O. (1958). *The strategy of economic development*. Yale University Press.
7. Haq, M. u. (n.d.). *Human development in South Asia: Annual report*. Centre for Human Resource Development, Islamabad.
8. Meier, G. M. (1995). *Leading issues in economic development* (6th ed.). Oxford University Press.

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Semester: 3rd
Course Title: Islamic Economics
Course Code: ECO-509

Weak	Topics
1	Economic problem and the Islamic view of life: meaning scope, Sources and dynamics of Islamic economics
2	Nature of Islamic economics
3	Moral values in Islam
4	Islam and other economic systems
5	Consumption and production in Islam: principles, Islamic injunctions, wants
6	Principles of production and economic welfare, private ownership rights, ownership of land
7	Tenancy, partnership, and labor-capital relationship in Islamic philosophy
8	Firms' behavior in Islamic spirit: Moral values, guidelines Objectives of Islamic firm, and Islamic firms under different market conditions, Islam and price mechanism
9	Distribution of Income and Wealth in Islam, Rent, wages, Riba, interest, and profit in Islam.
10	Fiscal Policy in Islam: Meaning, expenditure revenue policy, budgetary policy
11	Islamic institutions of bait-ul-mal taxation theory in Islam
12	Special measure to control inflation in Islam Prices in Islamic state
13	Economic Development and Planning in Islam Meaning and goals of economic development in Islam
14	Muslim countries and economic development Islam as a factor of development
15	Economic Planning in Islam: meaning, kinds targeted goals, strategies & priorities of economic planning in Islam

Recommended Books

1. Dar, A. H., & Akram, M. (n.d.). *Islamic economics* (latest ed.). Ilmi Kitab Khana
2. Mannan, M. A. (n.d.). *Islamic economics: Theory and practice [A comprehensive study]* (latest ed.). Muhammad Ashraf Publishers.

Further Readings

1. Naqvi, S. N. H. (2003). *Perspectives on morality and human well-being*. Islamic Foundation.
2. Zaman, A. (n.d.). *Islamic economics: A survey of the literature*. IRI Publications, International Islamic University, Islamabad.
3. Mirakhor, A., Iqbal, Z., & Askari, H. (n.d.). *Introduction to Islamic economics: Theory and application* (latest ed.). John Wiley & Sons.

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SEMESTER

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Course Code	Names of Courses	Category	Credit Hour
GED-508	Quantitative Reasoning-II	General-13	3 – Credit Hours
GED-510	Entrepreneurship	General-14	2 – Credit Hours
ATH ***	Arts and Humanities	General-15: Arts and Humanities	2 – Credit Hours
ECO-506	Macroeconomic Theory – I	Major-8	3 – Credit Hours
ECO-508	Managerial Economics	Major-9	3 – Credit Hours
ECO-510	Quantitative Economics	Major-10	3 – Credit Hours
Total			**16 Credit Hours**

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Semester: 4th
Course Title: Quantitative Reasoning-II
Course Code: GED-508

Weeks	Topics
1 & 2	**1. Logic, Logical and Critical Reasoning** • Introduction and importance of logic • Inductive, deductive and abductive approaches of reasoning • Propositions, arguments (valid; invalid), logical connectives, truth tables and propositional equivalences;
3 &4	• Logical fallacies • Venn Diagrams • Predicates and quantifiers • Quantitative reasoning exercises using logical reasoning concepts and techniques.
5 & 6	**2. Mathematical Modeling and Analyses** • Introduction to deterministic models • Use of linear functions for modeling in real-world situations • Modeling with the system of linear equations and their solutions
6 & 7	• Elementary introduction to derivatives in mathematical modeling • Linear and exponential growth and decay models • Quantitative reasoning exercises using mathematical modeling.
8, 9 & 10	**3. Statistical Modeling and Analyses** • Introduction to probabilistic models • Bivariate analysis, scatter plots
11, 12 & 13	• Simple linear regression model and correlation analysis • Basics of estimation and confidence interval • Testing of hypothesis (z-test; t-test)
14 & 15	• Statistical inference in decision making • Quantitative reasoning exercises using statistical modeling.

Recommended Books

1. Bennett, J. O., Briggs, W. L., & Badalamenti, A. (2019). *Using and understanding mathematics: A quantitative reasoning approach* (6th ed.). Pearson.
2. Rosen, K. H. (2019). *Discrete mathematics and its applications* (8th ed.). McGraw-Hill Education.
3. Epp, S. S. (2018). *Discrete mathematics with applications* (5th ed.). Cengage Learning.
4. Budnick, F. S. (2019). *Applied mathematics for business, economics, and social sciences* (10th ed.). McGraw-Hill Education.
5. Bluman, A. G. (2017). *Elementary statistics: A step by step approach* (10th ed.). McGraw-Hill Education.

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6. Mann, P. S. (2018). *Introductory statistics* (9th ed.). Wiley.
7. Babones, S. (2016). *Applied statistical modeling: A practical approach for students* (1st ed.). Sage Publications.
8. Green, S. W., & Wolf, I. K. (2018). *Barron's SAT* (30th ed.). Barron's Educational Series.

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Semester: 4th
Course Title: Entrepreneurship
Course Code: GED-510

Weeks	Topics
1 &2	**1. Introduction to Entrepreneurship** • Definition and concept of entrepreneurship. • Why to become an entrepreneur? • Entrepreneurial process. • Role of entrepreneurship in economic development.
3 & 4	**2. Entrepreneurial Skills** • Characteristics and qualities of successful entrepreneurs (including stories of successes and failures). • Areas of essential entrepreneurial skills and ability such as creative and critical thinking, innovation and risk-taking abilities etc.
5 & 6	**3. Opportunity Recognition and Idea Generation:** • Opportunity identification, evaluation and exploitation • Innovative idea generation techniques for entrepreneurial ventures.
7 & 8	**4. Marketing and Sales** • Target market identification and segmentation • Four Ps of Marketing. • Developing a marketing strategy. • Branding.
9 & 10	**5. Financial Literacy** • Basic concepts of income, savings and investments. • Basic concepts of assets, liabilities and equity. • Basic concepts of revenue and expenses. • Overview of cash-flows. • Overview of banking products including Islamic modes of financing. • Sources of funding for startups (angel financing, debt financing, equity financing etc.).
11, 12	**6. Team Building for Startups** • Characteristics and features of effective teams. • Team building and effective leadership for startups.
13, 14 & 15	**7. Regulatory Requirements to Establish Enterprises in Pakistan:** • Types of enterprises (e.g., sole proprietorship; partnership; private limited companies etc.). • Intellectual property rights and protection. • Regulatory requirements to register an enterprise in Pakistan, with special emphasis on export firms. 7. Taxation and financial reporting obligation.

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Suggested Practical Activity (OPTIONAL)

As part of the overall learning requirements, students shall be tasked with creating and presenting a comprehensive business plan at the end of the course for a hypothetical or real business idea. This practical exercise shall allow them to apply the knowledge, skills and competencies acquired in the course to develop a feasible business plan.

Recommended Books:

1. Barringer, B. R., & Ireland, R. D. (2019). *Entrepreneurship: Successfully launching new ventures* (6th ed.). Pearson.
2. Kuratko, D. F. (2016). *Entrepreneurship: Theory, process, and practice* (10th ed.). Cengage Learning.
3. Timmons, J. A., Spinelli, S., Jr., & Adams, R. (2019). *New venture creation: Entrepreneurship for the 21st century* (10th ed.). McGraw-Hill Education.
4. Abrams, R. (2017). *Entrepreneurship: A real-world approach* (5th ed.). Pearson.
5. Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Business.
6. Read, S., Sarasvathy, S., Dew, N., Wiltbank, R., & Ohlsson, A.-V. (2016). *Effectual entrepreneurship*. Routledge.
7. M. R. Sheikh and M.Z. Faridi (latest edition). *Entrepreneurship*, Target Publications Multan.



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Semester: 4th
Course Title: Macroeconomic Theory– I
Course Code: ECO-506

Weak	Topics
1 & 2	GDP, various approaches of measuring GDP. Nominal GDP and its measurement Real GDP its measurement Price indices, CPI, PPI, GDP deflator Saving and wealth, private savings, government savings and national Savings. The uses of Private Savings Inflation and its measurement Interest rates, Real Vs Nominal interest rates Unemployment and Okun's Law
3 & 4	The classical revolution and its features. Pillars of classical Macroeconomic system. Assumptions, Production, Labour market equilibrium and employment. Derivation of demand for labour curve and its determinants. Classical aggregate supply function, its derivation and determinants.
5	Classical monetary theory Money and its functions Monetary aggregates. Quantity theory of money, equation of exchange, velocity of money Fisher approach, Cambridge approach Classical theory of aggregate demand Determinants of Aggregate Demand Complete Classical Model and Monetary policy disturbance Neutrality of money Real disturbances in the Classical model.
6 & 7	The classical theory of interest Fisher Effect Classical capital market: Loanable fund theory or Bond Market. Policy implications of the classical model Says' Law of markets and its implications
8, 9 & 10	The role of aggregate demand. Keynesian criticism on classicals. The simple Keynesian Model: conditions for equilibrium output, the components of aggregate demand (impact of tax on consumption and saving mathematically and graphically). Transfer payment and its role in income determination. Construction of complete Keynesian model (mathematically and graphically)

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	A shift in aggregate demand The concept of Multiplier: Government spending Multiplier, Tax Multiplier, Balanced Budget Multiplier. Automatic stabilizer. Export Multiplier and import Multiplier. Numerical Examples.
11 & 12	The interest rate and aggregate demand The Keynesian theory of interest rate Keynesian Demand for money (Precautionary Transaction demand for money, speculative demand for money) Money Market Equilibrium and rate of interest determination
13, 14 & 15	Product Market equilibrium. Derivation of the slope of IS curve graphically and mathematically, shifting factors of IS curve. LM curve and its derivations. Determinants of the slope of LM curve. Shifting factors of LM curve. General Market equilibrium: Implications of General Market policy: Effectiveness of Fiscal Policy and Monetary policy. Policy implications of the slopes of IS-LM curves

Recommended Books

1. Froyen, R. T. (2017). *Macroeconomics: Theories and policies* (10th ed.). Pearson Education.
2. DeLorme, C. D., & Ekelund, R. B. (2008). *Macroeconomics* (2nd ed.). Business Publications.
3. Abel, A. B., & Bernanke, B. S. (2015). *Macroeconomics* (8th ed.). Pearson Education.
4. M. R. Sheikh and M.Z. Faridi (latest edition). *Macroeconomic Theory-I*, Target Publications Multan.

Additional Readings

1. Branson, W. H. (1979). *Macroeconomics: Theory and policy* (2nd ed.). Harper & Row.
2. Glahe, F. R. (1977). *Macroeconomics: Theory and policy* (2nd ed.). Harcourt Brace Jovanovich.
3. Mankiw, N. G. (2018). *Macroeconomics* (10th ed.). Worth Publishers.
4. Romer, D. (2019). *Advanced macroeconomics* (5th ed.). McGraw-Hill Education.



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Semester: 4th
Course Title: Managerial Economics
Course Code: ECO-508

Week	Topics
1	**1. Nature and Scope of Managerial Economics** Definition of managerial economics, relationship to economic theory, relationship to decision making science, relationship to the functional areas of business administration studies. The basic process of decision making. The theory of the firm. The nature and function of profits.
2 & 3	**2. Optimization Techniques** Methods of expressing economic relationships. Total revenue, average and marginal revenue relationship, total costs, average cost and marginal costs concepts and their relationship under perfect competition and imperfect competition (Mathematically and graphical relationship). Optimization analysis (Unconstrained and constrained). Numerical examples form all types of Market structures.
4 & 5	**3. Demand concept used in decision Making** The demand for a commodity. Price elasticity of demand. income elasticity of demand. cross price elasticity of demand. using elasticities in managerial decision making.
6 &7	**4. Demand Estimation and Forecasting** Definition and marketing research approaches to demand estimation. Definition of demand forecasting and qualitative techniques of forecasts. Production function and optimal combinations of inputs.
8	**5. Cost Theory Used in Decision Making** Cost concepts used in decision Making. Learning curves and decision making. Cost volume profit Analysis and operating leverage. Cost analysis with calculus.
9 & 10	**6. Oligopolistic and Managerial Behavioral Models** The Cournot Model. The kinked demand curve Model. Cartel Arrangements. Baumol sales Maximization Model, Willaimson Model of Managerial Discretion.
11, 12 & 13	**7. Pricing Practices** Pricing of multiple products. Price discrimination. Transfer pricing. Cost-Plus Pricing and Incremental Analysis in Pricing. Peak-load Pricing Two-Part Tariff. Tying and Bundling.
14 &15	**8. Risk Analysis** Risk and uncertainty in Managerial Decision Making. Measuring Risk with Probability Distributions.

Recommended Books:

1. Salvatore, D. (2012). *Managerial economics in a global economy* (5th ed.). McGraw-Hill Education.
2. Peterson, C. H., Lewis, W. C., & Jain, S. K. (2017). *Managerial economics* (4th ed.). Pearson.



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Further Suggested Readings

1. Douglas, E. J. (1996). *Managerial economics* (latest ed.). Prentice Hall.
2. Keat, P. G., & Young, P. K. Y. (1998). *Managerial economics*. Maxwell Macmillan.
3. Petersen, C. H., & Lewis, W. C. (1996). *Managerial economics*. Maxwell Macmillan.
4. Koutsoyiannis, A. (n.d.). *Modern microeconomics* (2nd ed.). Macmillan

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Semester: 4th
Course Title: Quantitative Economics
Course Code: ECO-510

Weeks	Topics
1–2	**Introduction to Quantitative Economics** Definition and scope of quantitative economics • Role of mathematics, statistics, and econometrics • Need for quantitative methods in economic analysis • Relationship between quantitative tools and economic theory (micro & macro)
3–4	**Variables, Functions, and Graphs** Types of variables and constants • Functions and functional forms (linear, nonlinear, logarithmic, exponential) • Domain and range • Graphical representation of economic relationships (demand, supply, equilibrium, production, cost, consumption, saving, output determination)
5–6	**Equations and Economic Applications** Algebraic expressions, equations, and identities • Linear, quadratic, and simultaneous equations • Application: Consumer budget line, demand & supply equations, market equilibrium • Consumption, saving, and investment functions • Equilibrium level of national income and multiplier effect
7–9	**Derivatives and Economic Analysis** Concept and rules of differentiation • Partial derivatives and total differentiation • Elasticity (price, income, and cross elasticity) • Applications: Production (AP & MP), cost (MC), revenue, utility, consumption, saving, and investment functions • Firm's equilibrium (MR = MC)
10–11	**Descriptive Statistics and Time Series Analysis** Measures of central tendency (mean, median, mode) • Measures of dispersion (range, variance, standard deviation) • Moments, skewness, and kurtosis • Time series components: trend, seasonal, cyclical, and irregular variations • Time series decomposition, trend analysis and forecasting
12–13	**Correlation and Regression Analysis** Concept and types of correlation • Pearson correlation coefficient • Simple and multiple regression analysis • Ordinary Least Squares (OLS) method • Coefficient of determination and standard error of estimate • Applications: Estimation of demand, supply, production, cost, revenue, consumption, saving, and investment functions

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14–15	**Index Numbers and National Accounts** Definition and uses of index numbers • Price relatives, link relatives, and base year concepts • Weighted and unweighted index numbers (Laspeyres, Paasche, Fisher) • Consumer Price Index (CPI) and Producer Price Index (PPI) • Nominal vs Real GDP, GDP deflator, inflation rate, growth rate, and terms of trade

Recommended Books:

1. Sydsaeter, K., & Hammond, P. (2001). *Essential mathematics for economic analysis* (1st ed.). Pearson Education.
2. Sharma, J. K. (n.d.). *Business statistics* (3rd ed.). Pearson Education.
3. Petersen, C. H., & Lewis, W. C. (2006). *Managerial economics* (4th ed.). Pearson Education (Prentice Hall).
4. Dwivedi, D. N. (2005). *Macroeconomics: Theory and policy* (1st ed.). Pearson Education.
5. Perloff, J. M. (2006). *Microeconomics* (2nd ed.). Pearson Education.
6. Khawaja, A. H., & Hayyat, M. K. (n.d.). *An introduction to mathematical economics*. Naveed Publications.
7. Chaudhry, S. M., & Kamal, S. (n.d.). *Introduction to statistical theory (Part 1)* (8th ed.). Markazi Kutub Khana.
8. Faridi, M. Z., & Sheikh, M. R. (n.d.). *Quantitative economics: Leading issues* (latest ed.). Target Publications.

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SEMESTER

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Course Code	Names of Courses	Category	Credit Hours
ECO-601	Microeconomic Theory – II	Major-11	3 – Credit Hours
ECO-603	Macroeconomic Theory – II	Major-12	3 – Credit Hours
ECO-605	Mathematical Economics	Major-13	3 – Credit Hours
ECO-607	Econometrics – I	Major-14	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course -1	ALD-1	3 – Credit Hours
Total			**15 Credit Hours**

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Semester: 5th
Course Title: Microeconomic Theory – II
Course Code: ECO-601

Week	Topics
1	**Monopolistic competition** Assumptions, costs, product differentiation and demand curve. The concept of industry and product group equilibrium of the firm. Model 1(Equilibrium with new firms entering the industry). Model 2 (equilibrium with price competition).
2	Model 3- (Price and free entry critique of Chamberlin's model). Comparison of monopolistic competition with pure competition
3	**Non-collusive oligopoly** Concept of non-collusive oligopoly Cournot's Duopoly model. Mathematical derivation of the reaction curves. Numerical examples. Bertrand's duopoly model.
4	Chamberlin's oligopoly model (smart group model). The Kinked-Demand model. Stackelberg's Duopoly model with numerical example.
5	**Collusive oligopoly** Concept of collusive oligopoly Cartels- aiming at joint profit maximization. Mathematical and numerical examples why industry profit is not maximized? Market-sharing cartels (a) non-price competition agreements (b) Sharing of the market by agreement on quotas
6	**Price leadership, concepts and definitions** A) The model of the Low-cost price leadership B) The model of the dominant firm price leader. C) Critique of the traditional price leadership models.
7	**Barometric price leadership** Mathematical and numerical examples of (a) low cost price leader (b) the dominant firm leader (c) the market sharing firm leader.
8 & 9	**Factor Pricing** **A. Factor Pricing in Perfectly Competitive Markets** **1 The Demand for Labour in Perfectly Competitive Markets** (i) Demand of a Firm for a Single Variable Factor (ii) Demand of a Firm for Several Variable Factors (iii) Market Demand for a Factor

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10	**2. The Supply of Labour in Perfectly Competitive Markets** (i) Supply of Labour by an Individual (ii) Market Supply of Labour **3 The Determination of the Factor Price in Perfect Markets**
11	**B. Factor Pricing in Imperfectly Competitive Markets** **Model A Monopolistic Power in the Product Market** (a) Demand of the Firm for a Single Variable Factor (b) Demand of the Firm for a Variable Factor When Several Factors are Used (c) The Market Demand for and Supply of Labour
12	**Model B Monopsonistic Power in the Factor Market** (a) The Monopsonist Uses a Single Variable Factor (b) The Monopsonist Uses Several Variable Factors **Model C Bilateral Monopoly** **Model D Competitive Buyer-Firm versus Monopoly Union**
13 & 14	**General equilibrium theory** A graphical treatment of the two factors, two commodity, two consumers General equilibrium system. (2x2x2) model 1. Assumptions 2. Static properties of a general equilibrium state. (a) Equilibrium of Production (b) Equilibrium of Consumption (c) Simultaneous Equilibrium of Production and Consumption
15	**Welfare economics** 1- Growth of GNP as a criterion of welfare 2- Cardinal criterion 3- Bentham's criterion 4- The pareto-optimality criterion 5- K-H compensation criterion 6- The Bergson criterion

Recommended Books:

1. A. Koutsoyiannis, Modern Microeconomics 2nd Edition Published by Macmillan Education
2. M. R. Sheikh and M.Z. Faridi (latest edition). Microeconomic Theory-II, Target Publications Multan.

Additional Readings:

1. Bilas, Richard A, Microeconomic theory 2nd edition published by McGraw-Hill kogakusha.
2. Pindyck, Robert S. Daniel L Rubinfeld and Prem L Mehta, Microeconomics (Latest edition) Pearson Education.
3. Walter Nicholson, Microeconomic Theory, Basic Principles and Extensions (6th edition) Published by Thomson South-Western corporation.

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Semester: 5th
Course Title: Macroeconomic Theory – II
Course Code: ECO-603

Week	Topics
1	**Theories of Aggregate demand and Aggregate supply** Aggregate demand curve its derivations, shifting factors. Factors that determine its slope (Keynesian effect or interest rate effect). Pigou effect or real balance effect. Comparison among classical aggregate demand curve, Keynesian aggregate demand curve and Monetarist aggregate demand curve. Keynesian aggregate supply curve-based Price-wage rigidity assumption. Classical aggregate supply curve based in the wage-price flexibility. Demand shocks, supply shocks, their effects.
2	Keynesian contractual view of the labour market. Sources of wage rigidity. A flexible price- fixed money wage model. Policy implications of AD-AS model. Classical and Keynesian theories of labour supply. The Keynesian aggregate supply curve with a variable money wage. Policy effects in the variable-wage Keynesian model comparison of fixed money wage model with variable money wage model. The factors that determine the slope of aggregate supply curve. Factors that shift the aggregate supply schedule.
3	**Theories of Consumption** Absolute-consumption hypothesis short-run VS long run-consumption function. Empirical evidence from cross-section budget study data and time series data. Relative income consumption hypothesis. Demonstration effect and Rachet effect. Permanent – income consumption hypothesis. How is permanent income measured? Permanent income consumption hypothesis and its reconciliation with budget study data and time series data
4	Life cycle hypothesis short-run and long run consumption functions. Policy implications. Other factors determine consumption MPS model, random walk model
5	**Theories of Investment** Investment vs capital. Aggregates of investment expenditures (fixed business investment, residential investment, inventory investment). Expected profit theory of interest. Factors that determine the expected profit.(a) Expected Net income (b) User cost of capital (c) Marginal efficiency of capital(d) Present value approach
6	Economic theories of business fixed investment (a)Neo-classical approach (b)Acceleration Principal (c)Tobin Q-ratio. Flexible accelerator and alternative theories of investment
7	Residential investment. Factors determining residential investment. Inventory investment. Reasons for holding the inventories. Accelerator model of inventory. Inventories and rate of interest

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8	**Inflation and Theories of Inflation** Inflation and measurement of inflation rate. Sources of inflation (Demand pull and cost push inflation). Effects of inflation – unanticipated inflation in the labor market, unanticipated inflation in the capital market. Costs of expected inflation.
9	Theory of Philips curve-short-run. Short-run Phillips curve and AD-AS model. Long run Philips curve-shifting factors of Phillips curve. The expectations-augmented Phillips curve. The natural rate theory. Cost of unemployment, natural rate of unemployment, its determinants, policies to nature rate of unemployment.
10	Philips curve – monetarist – view. Keynesian view of the output – inflation trade – off.
11	Trade cycles and theories of trade cycles. Accelerator – Multiplier interaction theory of business cycle. Aggregate demand theories of the business cycle.
12	Real business cycle theory Long – term growth, Growth Accounting. Harrod-Domar growth model
13	**Economic Growth** The accumulation of capital, the supply and demand for goods, growth in the capital stock and the steady state, approaching the steady state, how saving affects growth, the Golden rule level of capital, comparing steady states, finding the golden rule steady state (numerical example), the transition of the golden rule steady state
14	Population growth The steady state with population growth, the effects of population growth, alternative perspective on population growth
15	Technological progress in the Solow model, the efficiency of labour, the steady state with technological progress, the effects of technological progress, From growth theory to growth empirics, balanced growth, convergence, Polices to promote growth, evaluating the rate of saving, changing the rate of saving, allocating the economy investment. Endogenous growth theory.

Recommended Books:

1. Richard T. Froyen Macroeconomics, Theories and Policies, 10th edition published by Pearson Education
2. Michal Parkin Macroeconomics, Global Edition, published by Pearson Education.
3. N. Gregory Mankiw Macroeconomics 10th Edition published by Worth Publishers
4. M. R. Sheikh and M.Z. Faridi (latest edition). Macroeconomic Theory-II, Target Publications Multan.
5. Charles D. Delorme, & Robert B. Ekelund Macroeconomics 2nd Edition, Published by Business Publication.
6. Andrew B. Able and Ben S. Bernanke, Macroeconomics, 8th Edition published by Pearson Education.
7. William H. Branson Macroeconomics Theory and Policy, Published by Harper & Row.

Additional Readings:

1. Romer, David, Advanced Macroeconomics, Latest Edition, published by McGraw Hills, New York, London.
2. Peel D. and Minfow P., Advance Macroeconomics, Latest Edition, published by Edward Elgar, Cheltenham, U.K.

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Semester: 5th
Course Title: Mathematical Economics
Course Code: ECO-605

Weak	Topics
1.	The nature of Mathematical Economics Mathematical versus non-Mathematical Economics. Nature of Mathematical Economics; Exponents, Polynomials, Equations: Linear and Quadratic. Simultaneous Equations. Equilibrium, Graphs, Slopes, and Intercepts.
2.	Economic Models**:** Ingredients of mathematical models: Real Number Systems: Concept of Sets: Relations and Functions
3.	Types of Functions; Functions of two or more independent variables
4.	Supply and Demand Analysis: The meaning of equilibrium: Partial market equilibrium –A Linear Model & Nonlinear model
5.	General Market Equilibrium, Equilibrium in National Income Analysis, Analysis in Economics: Partial and General Market Analysis: Some Economic Examples and Interpretations
6.	The Role of Linear Algebra. Definitions and Terms. Addition and Subtraction of Matrices. Scalar Multiplication. Vector Multiplication. Multiplication of Matrices. Commutative, Associative, and Distributive Laws in Matrix Algebra. Identity and Null Matrices. Matrix Expression of a System of Linear Equations.
7.	Linear Models and Matrix Algebra: Matrices and Vectors with its Operations: Laws and Forms of Matrices: Identity & Null Matrix, Transpose & Inverse, Finite Markov Chains,
8.	Determinants and No singularity. Third-Order Determinants, Conditions and Tests of Non singularity: Properties of Determinants: Minors and Cofactors. Laplace Expansion and Higher-Order Determinants. Properties of a Determinant. Cofactor and Adjoint Matrices.
9.	Inverse Matrices. Solving Linear Equations with the Inverse. Cramer's Rule for Matrix Solutions. Leontief Input-Output Models;
10.	Comparative Statics and the Concept of Derivatives; the Concept of Limits. the Concept of Continuity, the Concept of Differentiability
11.	Rules of Differentiation and their Use in Comparative Statics;
12.	Rules of differentiation for a function of one variable, Rules of differentiation involving two or more function of the same variable
13.	Rules of differentiation involving function of the different variable, Partial Differentiation, Application to Comparative Static Analysis, Jacobian determinant
14.	Comparative Static Analysis of General Function Models: differentials, differentials & total derivatives, Derivatives of Implicit Functions: Comparative Statics of General-Function Models, Implicit Differentiation, Higher order derivatives

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15.	The nature of exponential functions; Nature exponential functions and the problem of growth; Logarithms; Logarithmic functions; Derivatives of Exponential and Logarithmic Functions; Optimal Timing; Further Application of exponential and Logarithmic Derivatives

Recommended Books:

1. Alpha C Chaing and Kevin Wainwright, Fundamental Methods of Mathematical Economics, Latest Edition, Published by McGraw hill.
2. Dowling; E.T, Introduction to Mathematics for Economists, Latest Edition, (part of Schaum's easy outlines series), Published by McGraw-Hill.

Additional Readings

1. Brichenhall C. & P. Grout, Mathematics for Modern Economics, Latest Edition.
2. Pemberton and Rau, Mathematics for Economists 3rd Edition, Published by Manchester University Press.
3. Fuente, A. de la, Mathematical Methods and Models for Economists, Latest Edition Published by Cambridge University Press.
4. Abadir, K.A. and Magnus, J. R., Matrix Algebra, Latest Edition Published by Cambridge University Press.
5. Hoy, Livernois, McKenna, Rees and Stengos, Mathematics for Economics, 3rd Edition, 2011, Published by MIT Press.

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Semester: 5th
Course Title: Econometrics – I
Course Code: ECO-607

Week	Topic
1	**Introduction** What is econometrics? Scope and subject matter of econometrics. Aims/ objectives of econometrics. Types of econometrics, methodology of econometrics
2	**Correlation Theory** Concept of correlation, different form of correlation, measures of linear correlation, the population correlation and its sample correlation. Theoretical basis of correlation. Numerical solution. Rank correlation, partial correlation coefficient, limitations of the theory of linear correlation. Numerical
3	**Single-Equation Regression Models** a) The nature of regression analysis historical origin of the term regression, the Modern interpretation of regression, Statistical VS Deterministic relationships, regression VS causation, regression VS correlation. The nature and sources of data for economic Analysis. Measurement scale of variable. b) Two variable regression analysis. Some basic ideas concept of population regression function. The meaning of the term linear stochastic disturbance term and significance of stochastic disturbance term. The sample regression function (SRF).
4	**Simple classical linear Regression model** Assumption of Classical Linear Regression Model (CLRM), Ordinary Least Squares Method (OLS). Derivation of the formulas $\hat{\beta}_1$ and $\hat{\beta}_2$ in case of Simple linear Regression Model (SLRM). Numerical estimation of the parameters. The properties of regression line. Distribution of dependent variable Y. Estimation of function whose intercept is zero.
5	Statistical Test of significance of the least square estimates. First order test. The test of the goodness of fit r^2 mathematical and numerical analysis. Relationship between r^2 and slope of the coefficients.
6	Mean and variances of the least squares parameter estimates i.e. mean of $\hat{\beta}_1$ and $\hat{\beta}_2$ variances of $\hat{\beta}_1$ and $\hat{\beta}_2$. Variance of disturbance term. The sampling distribution of the least squares estimates. Testing of hypothesis of $\hat{\beta}_1$ and $\hat{\beta}_2$ using Z test, t-test.
7	**Normality Test** i) Histogram of residuals. ii) Normal probability plot iii) Jarque–Bera Test of Normality

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8	Properties of least squares estimates. Desirable properties of estimators. Small sample properties of estimates Properties of the least squares estimators Gauss-Markove least-squares theorem. Linearity, the minimum variance property unbiasedness, importance of BLUE properties
9	Extension of the two-variables linear regression model. Regression on the standardized variables. Functional forms of the regression model their properties estimation. Choice of the functional form
10	Multiple regression analysis. Concept of multiple regression the three-variable model. Assumptions. The meaning of the partial regression coefficients OLS estimation of partial regression coefficients or formal derivation of the systems of the normal equations. Formal derivation of the systems of the normal equations. Mean and variances of the parameters estimates. Properties of the OLS estimators.
11	The Coefficient of determination R^2 and Adjusted Coefficient of determination $\bar{R}^2$ Cobb-Douglas production function. More on functional forms. Polynomial regression models partial correlation coefficients. Hypothesis testing in multiple regression model about an individual regression coefficient.
12	Regression analysis and analysis of variance Comparison of regression analysis and analysis of variance Testing the overall significance of the estimated regression model. Relationship between R^2 and F. Proof that t-Test is special case of F-test
13	Testing the improvement of fit obtained from additional explanatory variables. Testing the equality between coefficients obtained from different samples (the chow test). Testing the stability of regression coefficients when increasing the size of sample.
14	Testing of a restriction imposed on the relationship between two or more parameters of a function. Testing the function form of regression. Choosing between linear and log-linear regression models. The nature of Dummy variables. ANNOVA models - caution in the use of Dummy variables
15	The ANCOVA models. The dummy variables alternative to the chow test. Interaction effects using dummy variables. The use of dummy variables in seasonal analysis. Piecewise linear regression

Recommended Books

1. Damodar N. Gujarati Basic Econometrics 4th Edition, Published by McGraw-Hill.
2. A, Koutsoyiannis Theory of Econometrics 2nd Edition, Published by Macmillan press LTD.

Additional Readings

1. Johnston, J. J., Econometrics Methods, Latest Edition Published by McGraw Hill.
2. Pindyck, R.S.Rubinfeld, Econometric Models and Economic Forecasts, Latest Edition, Published by McGraw Hill.
3. Christopher Dougherty, Introduction to Econometrics, Third Edition, Oxford.
4. Dominick Salvatore and Derrick Reagle, Statistics and Econometrics, Latest Edition.
5. Maddals, G.S. Econometrics Latest Edition Published by McGraw Hill.



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SEMESTER

6

Course Code	Names of Courses	Category	Credit Hours
ECO-602	Public Finance	Major-15	3 – Credit Hours
ECO-604	Development Economics: Problems & Policies	Major-16	3 – Credit Hours
ECO-606	Advanced Mathematical Economics	Major-17	3 – Credit Hours
ECO-608	Econometrics – II	Major-18	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course -2	ALD-2	3 – Credit Hours
Total			**15 Credit Hours**



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Semester: 6th
Course Title: Public Finance
Course Code: ECO-602

Weak	Topic
1	**Introduction** Concept and definition of public finance, Nature and scope of Public finance, Major Functions of Public Sector, The Allocation Function, The Distribution Function, The Stabilization Function, Coordination of Budget Functions
2 & 3	**Public Provision for Social Goods** 1) Social Goods and Market Failure Market for Private Goods, Market Failure due to Nonrival Consumption, Market Failure due to non-excludability, Combined Causes of Market Failure 2) Provision for Social Goods Comparison with Private Goods, Budgetary Provision
4 & 5	3) Mixed Goods Externalities of Private Goods: External Benefits, External Costs, Bargaining in the Small Group: External Benefits, External Costs, Market Provision of Nonrival Goods 4) Merit Goods 5) Communal Wants, Merit Goods
6	**Social Goods Considered Further** 1) Meaning of Efficiency 2) Efficient Provision of Private Goods Efficiency Rules, Finding the Set of Efficient Solutions, Choice of Optimum, Allocation through the Market 3) Efficient Provision of Social Goods Efficiency Rules, Finding the Set of Efficient Solutions, Choice of Optimum 4) Social-Goods Allocation in the Budget Efficient Allocation
7	**Equity In Distribution** 1) Does Equity Belong in Economics? Determinants of Distribution, Distribution as a Policy Issue 2) Approaches to Distributive Justice Alternative Views, Endowment-Based Criteria, Utilitarian Criteria, Egalitarian Criteria
8 & 9	**Public Revenue** Introduction, main sources of public revenue, classification of public revenue (Adam Smith Bastable's, Seligman's, Daltan, Lutz, Taifer, Mehta and clary. Adam smith cannon of Taxation. Erik Lindalil solution of just taxation. Boun's Model, Types of taxation.

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10 &11	**Incidence and Shifting of Taxation** Impact and incidence of taxation, Musgrave concept of incidence, theories of tax shifting, incidence of tax under different cost condition. Factors influencing the shifting of tax. Incidence of taxation under monopoly and perfect competition
12	**Effects of Taxation** • Effects on Work Effort • Effects on Private-Sector Saving • Effects on Private Investment • Growth Effects and Tax Incidence
13 &14	**Public Expenditure** Causes of public expenditure growth. Difference between public and private expenditure, objective of public expenditure, canons of public expenditures, theories of public expenditures (Wagner's law of public expenditure, Peacock-wiseman hypothesis) effects of Public expenditure
15	**Public Debt** Meaning, classification of Public Debt, Sources of Public Debt, Effects of Public debt, Debt burden structure of public debt in Pakistan public debt theories.

Recommended Books

1. Musgrave, R. A., & Musgrave, P. B. (1989). Public Finance in Theory and Practice, (5th ed.). New York: McGraw-Hill.
2. Harvey S.. Rosen, & Gayer, T. (2010). Public finance. McGraw-Hill Higher Education.
3. M. Maria Jhon Kennedy Public Finance Latest edition Published by PHI learning Private Limited.
4. M. R. Sheikh and M.Z. Faridi (latest edition). Public Finance, Target Publications Multan.

Additional Readings

1. Backhaus, J., & Wagner, R. E. Handbook of public finance. Latest Edition, Published by Springer Science & Business Media.
2. Ulbrich, H. H. Public finance in theory and practice. Latest Edition, Published by Routledge.
3. Gruber, J. Public finance and public policy. Latest Edition, Published by Macmillan.
4. Seidman, Public Finance. Latest Edition, Published by McGraw-Hill/Irwin.
5. Ihori, T. Principles of public finance, Latest Edition, Published by Springer Singapore.
6. Greene, J. E. Public finance: An international perspective

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Semester: 6th
Course Title: Development Economics: Problems & Policies
Course Code: ECO-604

Weak	Topics
1	**1.** Population in Developing Countries (Issues and trends) **2.** Population Growth and Quality of Life in Developing Countries **3.** The Malthusian Population Trap Theory **4.** The Microeconomic Household Theory of Fertility **5.** Fertility Rate in Developing Countries
2	Urbanization – trends and scenarios **1.** Role of Cities **2.** Understanding Urban Giants – Causes and Consequences • The political economy of urban giants **3.** The Urban Informal Sector **4.** Migration and Development **5.** Theories of Rural Urban Migration Todaro Model
3	**1.** The Central role of Education in Economic Development **2.** Investing in Education – Human Capital Approach **3.** The Gender Gap: Discrimination in Education Sector **4.** Educational Systems and Development
4 & 5	**1.** Economics and the Environment, Sustainable Development and Environmental Accounting **2.** Environment relationship to Population, Poverty and Economic Growth **3.** Environment and Rural - Urban Development. **4.** Natural resource based Livelihood **5.** Global Warming and Climate Change • Scope, Mitigation and Adaption **6.** Economic Models of Environmental Issues **7.** Urban Development and the Environment **8.** Deforestation **9.** Policy options for Developing and Developed Countries
6 & 7	**1.** Economic Globalization: Meaning, extent and Limitations **2.** Trade Theory and Economic Development • Traditional trade theory and experience of developing countries. **3.** Export promotion vs Import Substitution **4.** The Industrialization Strategy Approach to Export Policy **5.** South – South Trade and Economic Integration
8 & 9	**1.** The Balance of Payment Account **2.** The Issue of Payment Deficit **3.** Debt in Developing Countries **4.** The 2000s Global Financial Crisis

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10	**1.** The International flow of financial resources: trends and scenarios **2.** Private Foreign Direct Investment and the Multinational Corporations. The role of Remittances in Economic Development
11 & 12	**1.** Foreign Aid and its trend in developing countries **2.** Conceptual and measurement problems **3.** Public Aid: amounts and allocations **4.** Rationale of giving and receiving aid **5.** Role of Nongovernmental Organizations (NGOs) in Aid **6.** The Effects of Aid
13	**1.** What are conflicts? **2.** The scope of violent conflict and conflict risks **3.** The consequences of armed conflict and risk factors for conflict **4.** Resolution and prevention of armed conflicts
14 & 15	**1.** The role of financial system in economic development **2.** The role of central bank and alternative arrangements **3.** Informal finance & Microfinance **4.** Formal Financial System and Reforms **5.** Fiscal Policy for Development **6.** Nationalization vs Privatization

Recommended books:

1. Michael P. Todaro and Stephen C. Smith (2020) Economic Development 13th Edition – Peasron, UK.

Additional Readings:

1. Balasubramanyam V and Hall. S (Latest Edition) Current Issues in Development Economics, London.
2. Chenery H.B and Srinivasen, Hand book of Development Economics, Vol I & II Amsterdam (Latest Edition), North Holland.
3. Cypher J.M and Dietz James (Latest Edition), The process of Economic development**.**
4. Ghatak Subarat, (Latest Edition), Introduction to Development Economics, Routledge, Taylor and Francis Group, London /New York.
5. Herrick B, and Kindlebergerc, (Latest Edition), Economic Development**,** McMillan New York.
6. Jones H, G. An Introduction to Modern Theories of Economic Growth, (Latest Edi), McGraw Hill.
7. Hirshman, A.O., Strategy of Economic Development, Yale University Press.
8. Mahboob ul Haq, Centre for Human Resource Development, Human Development in South Asia, Annual Report Islamabad

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Semester: 6th
Course Title: Advanced Mathematical Economics
Course Code: ECO-606

Weak	Topics
1.	Optimization: A Variety of Equilibrium Analysis Concept of Optimization; Optimization: Special Variety of Equilibrium Analysis; Optimum values and extreme values, relative maxima and Minima, First derivative and Second derivative test, Second and Higher Derivatives, Maclaurin and Taylor series
2.	Increasing and Decreasing Functions. Concavity and Convexity. Relative Extrema. Inflection Points. Optimization of Functions. Successive-Derivative Test for Optimization. Marginal Concepts. Optimizing Economic Functions. Relationship among Total, Marginal, and Average Concepts.
3.	The case of more than One Choice Variable The Differential version of optimization conditions; Extreme values of a function of two variables; Objective functions with more than two variables
4.	Second order conditions in Relation to Concavity and Convexity; Economic Applications; Comparative Static aspects of optimization
5.	Optimization with equality Constrains Effects of Constraint; Finding the Stationary values; Second Order Conditions; Quasi-concavity and Quasi-convexity
6.	Utility Maximation and Consumer Demand, Homogeneous functions, Least Cost combinations of Inputs
7.	Linear programming, solution of linear programming by graphs and Simplex method. Non linear programming and Kuhn Tucker Conditions; The Constraint Qualification; Economic Applications
8.	Sufficiency Theorems in Nonlinear Programming; Maximum Value functions and the Envelope Theorem; Duality and the Envelope Theorem.
9.	Economic Dynamics and Integral Calculus: Dynamics and Integration: Indefinite Integrals: Definite Integrals: Improper Integrals: Some Economic Applications of Integrals: Domar Growth Model
10.	First Order linear differential equations : First Order linear differential equations with constant coefficient and constant term; Dynamics of Market price; Variable coefficient and variable term; Exact Differential equations; Non linear Differential equations of the first order and first degree; The Qualitative Graphic Approach; Solow Growth Model
11.	Higher Order Differential Equations Second Order linear differential equations with constant coefficients and constant term; Complex numbers and circular Functions; The interaction of inflation and unemployment
12.	The First Order Difference Equation Differential equations with a variable term; Discrete time; differences and difference equations; Solving a first order difference equations; The dynamic stability of equilibrium; The Cobweb model

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13.	Higher Order Difference Equation Second order linear difference equations with constant coefficients and constant term; Samuelson, Multiplier Acceleration interaction model; Inflation and Unemployment in Discrete time.
14.	Simultaneous Differential Equations & Difference Equations, The Genesis of Dynamic System, Solving Simultaneous Dynamic Equations
15.	Dynamic Input Output Models, Two variable phase diagrams, linearization of Non-Differential Simultaneous equation system. Game theory, Zero-sum Game, Constant sum game, Graphical solution Maximum, Minimax. Saddle point solution of problem

Recommended Books:

1. Alpha C. Chiang and K. Wainwright, Fundamental Methods of Mathematical Economics, Latest Edition, Mc Graw-Hill.
2. Dowling, Edward T. Introduction to Mathematical Economics (part of Schaum's easy outlines series), New York, McGraw-Hill, 2006.

Additional Readings:

1. Pemberton and Rau, Mathematics for Economists, Manchester University Press, 3rd Edition, 2011.
2. Abadir, K.A. and Magnus, J. R., Matrix Algebra, Cambridge University Press, 2005.
3. Fuente, A. de la, Mathematical Methods and Models for Economists, Cambridge University Press, 2000.
4. Sydsaeter, Knut and Peter Hammond. Essential Mathematics for Economic Analysis, 2nd Ed. Financial Times, Prentice Hall, Harlow, England. ISBN is 0-273-68180-X, 2006.



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Semester: 6th
Course Title: Econometrics – II
Course Code: ECO-608

Week	Topics
1	Meaning and concept of Multicollinearity. Nature of Multicollinearity, Causes of Multicollinearity. Estimation in the presence of perfect Multicollinearity, Estimation in the presence of "High" but imperfect Multicollinearity (Mathematically explanation)
2	Theoretical and practical consequences of Multicollinearity. Tests for detection of Multicollinearity (Numerical practice)
3	i) Solution or remedial measures of Multicollinearity. ii) Violation of Assumption of Randomness of μi iii) Violation of the Assumption of zero mean of μi iv) Violation of the assumption of constant variance. v) Difference between Homoscedasticity and heteroscedasticity Graphical interpretation
4	Reasons or causes of Heteroscedasticity. OLS Estimation in the presence of Heteroscedasticity, the method of generalized Least square (GLS). Difference between OLS and GLS. Consequences of the violation of the Assumptions of Homoscedasticity.
5	Tests or Methods for detecting Homoscedasticity. Informal methods and formal method park test, Glejser test, spearman's rank correlation test, Gold Feld Quandt test. (Numerical practice)
6	Remedial measures and solutions for Heteroscedasticity disturbances. Concept and meaning of autocorrelation. Difference between serial correlation and autocorrelation, Graphical interpretation. Sources and reasons of autocorrelation. The first order autoregressive scheme. Mean variance and covariance of autocorrelated error terms μ_s.
7	Consequences of autocorrelation (Mathematical explanations). Test for detecting the autocorrelation Graphical Methods, the Von-Neuman Ratio, the Durbin Watson test, correcting for (Pure) autocorrelation. The method of GLS (When ρ is Known and ρ is not Known, Methods for estimating the autocorrelation parameters. i. A prior information on ρ ii. Estimation of ρ from the d-statistic iii. The Cochrane – Orcutt Iterative Method iv. Durbin's "Two step" method of estimation of ρ
8	Econometric modeling: model specification and diagnostic testing Model selection criterion, types of specification errors. Consequences of the specifications errors, testing of specification errors.

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9	Errors of the measurement (Both dependent variables and independent variables). Plausibility of assumptions of No measurement errors in the X. Consequences of the violation of the assumption of No-errors of measurement and their formal proofs. Testing for errors in the regression. Nested VS Non-Nested Model. Various Model selection criteria.
10	The Nature of the simultaneous Equation Models. Examples of simultaneous equation models. Consequences of simultaneous relations. The simultaneous-equation Bias. Inconsistency of OLS estimations. Structural Models reduced form Models. Recursive models
11	Identification definition the problem of identification stated. Under identification. Exact identification, over identification, Mathematical example from demand and supply model.
12	Formal rules for identification. Establishing identification from structural form of the model. Establishing identification from reduced form of the model. Identification restriction identification and choice of econometric model. Numerical examples from economic models.
13	Simultaneous equation methods 1- The reduced form method or indirect least square method, assumptions and properties. 2- The method of instrumental variables, concept, assumptions properties, Notes on the instrumental variables method. Two-stage least square method concepts, nature assumptions, Properties, and features of 2SLS. Remarks on the two stage least square method.
14 & 15	Autoregressive and distributed lag models The role of lag or time in economics The reasons for lags, estimation of distributed lag models. a) The Koyck approach to distributed lag models b) Another rationalization of the Koyck model. The stock adjustment or partial adjustment model. c) Combination of adaptive expectations and partial adjustment models d) Estimation of autoregressive models e) The method of instrumental variables. f) Detecting autocorrelation in autoregressive models Durbin h test. The Almon Approach to distributed lag models the Almon or polynomial distributed lag

Recommended Books:

1. Damodar N. Gujarati: Basic Econometrics 4th edition, Published by McGraw-Hill.
2. Koutsoyiannis: Theory of Econometrics 2nd edition, Published by Macmillan press LTD.

Additional Readings:

1. Pindyck, R.S.Rubinfeld, Econometric Models and Economic Forecasts, Latest edition, Published by McGraw Hill.
2. Dimitrios Asteriou & Stephen G. Hall, Applied Econometrics 3rd Edition, Published by Palgrave Macmillan

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SEMESTER

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Course Code	Names of Courses	Category	Credit Hours
ECO-609	International Trade: Theory & Policy	Major-19	3 – Credit Hours
ECO-611	Economics of Money and Banking	Major-20	3 – Credit Hours
ECO-613	Research Methodology	Major-21	3 – Credit Hours
INT-601	Field Experience/Internship	Internship	3 – Credit Hours
ALD****	Allied/ Interdisciplinary Course-3	ALD-3	3 – Credit Hours
Total			**15 Credit Hours**

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Semester: 7th
Course Title: International Trade: Theory & Policy
Course Code: ECO-609

Week	Topics
1	**The law of comparative advantage** i) The mercantilists' thesis or views on trade. ii) Three basic questions iii) Absolute advantage theory of trade. iv) Trade based on comparative advantage, law of comparative advantage, gain from trade. Large country versus small country. v) Exception to the law of comparative advantage.
2	vi) Comparative advantage and the labour theory of value. vii) Haberler theory of opportunity cost- Law of comparative cost. The production possibility frontier under constant cost. The basis for and the gains from trade under constant cost. Relative commodity prices with trade.
3	**The standard theory of international trade** Increasing opportunity costs theory of trade. Graphical interpretation. Causes of increasing opportunity. General equilibrium in a single economy (closed economy and small open economy). The basis for and the Gains form Trade with increasing costs (comparative advantage). Equilibrium relative commodity prices with trade. Incomplete specialization. Trade based on difference on trade.
4	**Demand and supply, offer curves and the term of trade** i) The equilibrium relative commodity price with trade-partial equilibrium analysis. ii) Offer curves- concept and definitions. Derivation of offer curves. Nature of the offer curve. Elasticity demand for imports and offer curve. The equilibrium-relative commodity price with trade- General equilibrium analysis iii) The terms of trade. Definition and measurement of the term of trade. Explanation with numerical examples.
5	**Factor endowment and the Heckscher–Ohlin theory of trade** i) The basic assumptions of the Heckscher-Ohlin Model (detailed explanation) ii) The meaning of intensity (Fixed coefficients and variable coefficients of production) iii) Factor abundance. iv) The main propositions of H-O Model. (a)H-O theorem. (b) Factor Price Equalization theorem (c) Stolper-Samuelson theorem (d) Rybczynski theorem. General equilibrium framework of H-O theory.
6	**Alternative trade theories and empirical testing** The Leontief paradox and its explanation Factor intensity reversal, The specific factor model Increasing returns to scale and decreasing opportunity cost.
7	**Monopolistic competition and international trade** Lender's thesis. Technological gap and product cycle theory, Intra industry trade model

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8	**Economic growth and international trade** Growth of factor of production. The Rybczynski theorem, technological progress. Growth and trade: the small country case. Growth and trade: the large country case Immiserating growth, Growth change in tastes and trade in both nation.
9 & 10	**Trade restriction: Tariffs** Definition of tariffs. Types of tariffs, (Ad-valorem, specific and compound Tarif), Difference between Ad-Valorem and specific tariff. The partial equilibrium analysis of the tariff (effect of a tariff on consumer and producer surplus, costs and Benefits of a tariff), The effect on Domestic Consumption, the tariff revenue, the effect on the volume of Trade. The concept of prohibitive tariff. The effects of the tariff on a small country- A General equilibrium Analysis. General equilibrium Analysis of Tariff in large country. Tariffs and world welfare. The tariff as a production subsidy plus a consumption tax
11	**Theory of effective rate of production (Mathematical and Numerical version)**. The Optimum Tariff theory (Meaning of the concept of optimum tariff. Measuring of optimal tariff. The theory of domestic distortions. The infant industry argument (Economic VS Non-Economic Arguments for protection)
12 &13	**Instruments of commercial policy or non Tariff trade Barriers** 1) Export taxes and its effects (Partial equilibrium). 2) General equilibrium Analysis of export taxes. 3) Export subsidy and its effects. 4) Quantitative Restrictions (Import quota and Export Quota) types of import quota. 5) Equivalence between import taxes and import quota. Difference between import quotas and import taxes (Potential Monopoly VS Actual Monopoly)
14	1) International cartels. Centralized Cartels 2) Dumping and types of Dumping (persistent dumping, predatory Dumping, sporadic Dumping) economic policy towards Dumping. 3) Concept of GATT
15	**Custom union** Economic integration preferential trading. Arrangements- Various stages leading to custom union. The nature of preferential trading. The theory of the second best. An outline of the theory of customs union. An illustration of Trade creation and Trade diversion. Dynamic effects of custom union

Recommended Books:

1. Salvatore, International Economics, 13th Edition Published by Wiley
2. Miltiades Chacholiades, International Economics, International edition Published by McGraw-Hill

Further Readings:

1. Sodersten, B.O., International Economics New York, Harper and Row, Latest Edition.
2. James C. Ingram, International Economics, 3rd ed. John Wiley & Sons, 1994.
3. Grubel, Herbert G., International Economics, Homewood IL, Richard D. Irwin (Ins), Latest.



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Semester: 7th
Course Title: Economics of Money and Banking
Course Code: ECO-611

Weak	Topic
1	**Introduction to Money** • Nature and importance of money • Role of money and banking in the economy • Evolution of money • Functions of money • Types of money
	Measurement of Money Supply • Monetary aggregates (M1, M2, M3 and L) • High-powered money • Importance of money supply
3	**Demand for Money** • Classical theory of money demand • Keynesian liquidity preference theory • Modern views (overview)
4	**Banking and the Management of Financial Institutions** **The bank balance sheet** • Liabilities • Assets • **Basic Banking operations** **General principles of bank management** • Liquidity management and the role of reserves • Asset management • Liability management • Capital adequacy management
5	**Managing Credit Risk** • Screening and monitoring • Long-term customer relationships • Loan commitments • Collateral and compensating balances • Credit rationing **Managing Interest-Rate Risk** • Gap analysis • Duration analysis
6	**Banking Industry: Structure And Competition** **Historical Development of the Banking System** • Multiple regulatory agencies **Financial Innovation and Evolution of the Banking Industry** • Responses to changes in demand conditions: interest rate volatility

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	• Responses to changes in supply conditions: information technology • Avoidance of existing regulations • Financial innovation and the decline of traditional
7	**Structure of the U.S. commercial banking industry** • Restrictions on branching • Responses to branching restrictions **Thrift industry and regulatory framework** • Savings and loan associations • Mutual savings banks • Credit unions **Nature and scope of international banking** • Eurodollar market • Structure of U.S. banking overseas • Foreign banks in the domestic banking system
8	**Structure of Central Banks and the Federal Reserve System** **Origins of the Federal Reserve System** **Formal Structure of the Federal Reserve System** • Federal Reserve Banks • Member banks • Board of Governors of the Federal Reserve System • Federal Open Market Committee (FOMC) • FOMC meetings and decision-making process **Informal Structure of the Federal Reserve System**
9	**How Independent Is the Fed?** **Structure and Independence of Foreign Central Banks** • Bank of Canada • Bank of England • Bank of Japan • European Central Bank • The Trend Toward Greater Independence
10	**Explaining Central Bank Behavior** **Should the Federal Reserve Be Independent?** • Case for central bank independence • Case against central bank independence **Central Bank Independence and Macroeconomic Performance**
11	**Multiple Deposit Creation and the Money Supply Process** **Four Players in the Money Supply Process** • Central bank • Commercial banks • Depositors • Borrowers **The Fed's Balance Sheet** • Liabilities

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	• Assets **Control of the Monetary Base** • Federal Reserve open market operations • Shifts from deposits into currency • Discount loans • Other factors affecting the monetary base • Overview of the Fed's ability to control the monetary base
12	**Multiple Deposit Creation: A Simple Model** • Deposit creation: the single bank • Deposit creation: the banking system • Deriving the formula for multiple deposit creation • Critique of the simple model
13	**Determinants of the Money Supply** **The Money Supply Model and the Money Multiplier** • Deriving the money multiplier • Intuition behind the money multiplier **Factors that Determine the Money Multiplier** • Changes in the required reserve ratio (r) • Changes in the currency ratio (c) • Changes in the excess reserves ratio (e) **Additional Factors That Determine the Money Supply** • Changes in the nonborrowed monetary base • Changes in discount loans from the Fed **Overview of the Money Supply Process**
14	**Tools of Monetary Policy** **The Market for Reserves and the Federal Funds Rate** **Supply and Demand in the Market for Reserves** **How Changes in the Tools of Monetary Policy Affect the Federal Funds Rate** **Open Market Operations** • A Day at the Trading Desk • Advantages of Open Market Operations **Discount Policy** • Operation of the Discount Window • Lender of Last Resort • Advantages and Disadvantages of Discount Policy **Reserve Requirements** • Advantages and Disadvantages of Reserve Requirement Changes
15	**Goals of Monetary Policy** • High Employment • Economic Growth • Price Stability • Interest-Rate Stability • Stability of Financial Markets • Stability in Foreign Exchange Markets

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	• Conflict Among Goals **Central Bank Strategy: Use of Targets** • Choosing the Targets • Criteria for Choosing Intermediate Targets • Criteria for Choosing Operating Targets

Recommended Books:

1. Mishkin, F. S. (2011). The Economics of Money, Banking, and Financial Markets (4th Edition). Canada, Toronto, Pearson
2. Jhingan, M. L. (2012). Monetary Economics (7th Edition). Delhi, India: Vrinda Publications Pvt. Ltd.
3. Matthews, K., & Thompson, J. (2014). The Economics of Banking (3rd Edition). Hoboken, New Jersey: John Wiley & Sons, Ltd.

Further Readings:

1. Luckett G. Dudley, Money and Banking, 3rd Ed, McGraw Hill 1984.
2. Goldfeld & Chandler, The Economics of Money and Banking Harper& Row Publishers.
3. Vaish, M.C., Monetary Theory Vikas Publishing House, Delhi 2000.
4. Bennett. T. McCallum, Monetary Economics (Theory &Policy), McMillan 1989



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Semester: 7th
Course Title: Research Methodology
Course Code: ECO-613

Week	Topics
1	Introduction to Research 1. What is Research? 2. Importance of Research. 3. Types of Research? 4. Applied & Basic Research 5. Quantitative and Qualitative Research. 6. When is Research Needed? 7. Ethical Consideration in Research
2	**Scientific Investigation** Characteristics of Good Research. Approaches to Research Kumar Deductive and Inductive Reasoning Research Process an Overview
3	**Problem Definition** (The Foundation of Research) Importance of Starting with Good Problem Definition Broad Problem Area Preliminary Information Gathering (Preliminary Research) Defining the Problem Statement Elements of Problem Statement Guidelines of Creating a Good Problem Statement Criteria in Assessing the Quality of a Good Problem Statement. Ethical Issues
4	**Literature Review** What is Literature Review. 2. Importance of Literature Review How to Approach Literature (Sources of Literature Review)? Searching for Literature. Evaluating Literature. Documenting the Literature Review Referencing the Literature.
5	Theoretical Framework and Setting Objectives The need for a Framework. 2. Construct and Variable. 3. Types of Variables i. Dependent Variable ii. Independent Variable iii. Moderating and Mediating Variables. 4. Theory and Theoretical Framework 5. Concept and Conceptual Framework 6. Developing the Theoretical Framework. 7. Setting Research Objective

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	8. Setting Research Questions Developing Hypothesis
6 &7	**<u>Research Design and Proposal Writing</u>** 1. The research Design 2. Exploratory Research 3. Descriptive Research 4. Cross Sectional vs Longitudinal Research 5. Causal Research Guidelines for Preparing Research Proposal
8	**<u>Methods of Data Collection</u>** 1. Qualitative vs. Quantitative data collection methods i. Observation ii. Survey Methods 2. Qualitative Data Collection Techniques i. In-depth Interview ii. Focus Group Discussion iii. Projective Techniques Collection of Secondary Data
9 & 10	**Scaling Techniques** 1. Basic Measurement Techniques i. Nominal Scale ii. Ordinal Scale iii. Interval Scale iv. Ratio Scale 2. Advanced Measurement Techniques i. Comparative Scales • Paired Comparison Scale • Rank Order • Constant Sum Scaling • Q. Sort Scale ii. Non-Comparative Scale • Continuous Ratting Scale • Itemized Rating Scale (Likert Scale) 3. Practical Consideration while Setting Scale 4. The Characteristics of Good Measurement Reliability, Validity , Practicality
11 & 12	**<u>Questionnaire</u>** 1. Types of Questionnaire 2. Questionnaire Design 3. Guidelines for Questionnaire Design 4. Pretesting of Questionnaire
13	**<u>Sampling</u>** 1. Basic Terminology (Population, element, sample, sampling unit, subject etc.) 2. Sample Data and Population values (Statistics, parameters etc.) Kumar 9 Sekran 3. The Sampling Process 4. Probability Sampling 5. Non-Probability Sampling 6. Sample Size Calculation

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14	**Data Analysis** 1. Preparing Data for Analysis 2. Data Entry, (MS EXCEL, SPSS) 3. Handling the Missing Data 4. Data Transformation
15	**Statistical Analysis** 1. What is Analysis? 2. Frequency Distribution (Simple Tabulation & Cross Tabulation) 3. Basic Statistics 4. Graphical presentation of Data

Recommended Books:

1. Kumar R. Research Methodology Latest Edition published by SAGE Publications.
2. Uma Sckaran Research Methods For Business: A Skill Building Approach, 7th Edition published by Wiley.
3. William G. Zikmund, Barry J. Babin, Jon C. Carr, Mitch Griffin, Business research methods, Latest Edition published by Cengage Learning,.

Additional Readings

1. W. Lawrence Neuman, Social Research Methods, Qualitative and Quantitative Approaches Latest Edition Published by Pearson.

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Semester: 7th
Course Title: Field Experience/Internship
Course Code: INT-601

Field experience is a **professional learning experience** that offers meaningful and practical work experience related to a student's field of study or career interest. It is an opportunity to apply knowledge gained in the classroom with practice in the field.
The field experience of six to eight weeks (preferably undertaken during semester or summer break) must be graded by a faculty member in collaboration with the supervisor in the field. This is a mandatory degree award requirement of 3 credit hours for all undergraduate/equivalent degree programs. However for Associate Degrees, the requirement shall only be applicable where prescribed by the respective Accreditation Council, National Curriculum Review Committee or by the concerned university.
For **BS Economics students**, a field experience/internship should expose them to real-world applications of economic theory, data analysis, policy-making, and financial or social research. Since the HEC guideline specifies **6–8 weeks** and a **graded requirement of 3 credit hours**, it should be structured, supervised, and relevant to their degree. These are some suggestions:

Organization / Institution	Field / Department	Type of Work / Projects	Skills Gained
State Bank of Pakistan (SBP)	Research, Monetary Policy, Banking Supervision	Assist in policy research, financial stability analysis, macroeconomic reporting	Economic analysis, data interpretation, policy evaluation
Pakistan Bureau of Statistics (PBS)	Surveys & Statistics	Collect/analyze CPI, labor force, household income survey data	Data collection, statistical analysis, reporting
Ministry of Finance	Budget, Fiscal Policy	Assist in budget analysis, taxation studies, fiscal reports	Policy evaluation, report writing, economic modeling
Planning Commission of Pakistan	Development Planning	Evaluate development projects, socio-economic surveys	Project evaluation, data analysis, policy impact assessment
Board of Investment (BOI)	Investment Promotion	Research on FDI, economic incentives, investment policies	Policy research, investment analysis, report preparation
Federal Board of Revenue (FBR)	Taxation & Revenue	Assist in tax policy analysis, revenue data collection	Tax policy understanding, economic reporting
Trade Development Authority of Pakistan (TDAP)	Trade & Export Promotion	Research on exports, trade policy, market surveys	Market analysis, trade policy understanding
Competition Commission of Pakistan (CCP)	Market Regulation	Assist in research on market structure, anti-competition cases	Regulatory analysis, economic research

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Commercial Banks (HBL, UBL, MCB, etc.)	Banking, Credit Risk, Financial Analysis	Credit assessment, risk evaluation, financial reporting	Banking operations, risk assessment, financial analytics
Microfinance Banks	Loans & Development	Study micro-loan impact on households & SMEs	Microeconomics application, data analysis, reporting
Pakistan Stock Exchange (PSX)	Market Analysis	Track market trends, perform investment research	Stock market understanding, financial analysis
Insurance Companies (EFU, Jubilee, Adamjee)	Risk & Actuarial	Policy evaluation, risk assessment, claim analysis	Risk analysis, actuarial methods, reporting
Asset Management / Investment Firms	Portfolio & Investment Analysis	Analyze portfolios, financial forecasting	Investment analysis, data modeling, report preparation
Pakistan Institute of Development Economics (PIDE)	Economic Research	Assist in policy studies, economic surveys	Policy research, report writing, statistical analysis
Social Policy & Development Centre (SPDC)	Poverty & Inequality	Research projects on education, health, income	Socioeconomic analysis, survey design, reporting
Applied Economics Research Centre (AERC)	Urban & Development Economics	Conduct economic studies, field surveys	Research skills, data analysis, report writing
United Nations Development Programme (UNDP)	Development Projects	Evaluate SDG projects, policy research	Project evaluation, data analysis, policy skills
World Bank / IMF (Country Offices)	Development Economics	Assist in economic policy research, project assessment	Policy analysis, macroeconomic modeling
Asian Development Bank (ADB)	Regional Development	Research on regional economics, project evaluation	Development analysis, research methods
USAID Projects in Pakistan	Socioeconomic Projects	Program evaluation, data collection	Monitoring & evaluation, reporting
International NGOs (Oxfam, BRAC, Save the Children)	Development & Welfare	Data collection, impact assessment of programs	Field research, report writing, policy insight
Market Research Firms (Gallup Pakistan, Nielsen, Kantar)	Consumer Behavior	Conduct surveys, analyze consumer trends	Market research, data analysis, reporting
Corporate Strategy / Analytics Departments	Business & Economics	Cost-benefit analysis, production economics, forecasting	Business analytics, economic modeling
Consulting Firms (McKinsey, PwC, KPMG, EY)	Economic Consulting	Economic feasibility studies, policy analysis	Consulting skills, data interpretation, professional reporting

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E-commerce & Digital Companies (Daraz, Careem, Foodpanda)	Digital Economy	Analyze consumer behavior, financial inclusion, pricing	Business analytics, behavioral economics
University Research Centers	Academic Research	Assist faculty with surveys, research, data analysis	Research methodology, report writing, analytical skills
Energy & Environmental Organizations	Energy Economics, Environmental Policy	Study energy consumption, climate economics	Environmental economics, data analysis, policy evaluation
Trade Associations (Pakistan Business Council, FPCCI)	Industrial Economics	Research on trade and industrial policy	Market research, economic policy skills
Business Firms, Corporations & Industry (Manufacturing, FMCGs, Textile, Pharma, Automotive, etc.)	Production, Costing, Market Analysis, Supply Chain	Cost analysis, pricing strategy, demand forecasting, productivity analysis, industrial research	Managerial economics, cost-benefit analysis, forecasting, data analytics, strategic decision-making

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SEMESTER

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Course Code	Names of Courses	Category	Credit Hours
ECO-610	International Finance	Major-22	3 – Credit Hours
ECO-612	Islamic Finance	Major-23	3 – Credit Hours
ECO-614	Financial Economics	Major-24	3 – Credit Hours
CAP-601	Research Project	Capstone Project	3 – Credit Hours
ALD-611	Artificial Intelligence for Economists	ALD-4	3 – Credit Hours
Total			**15 Credit Hours**

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Semester: 8th
Course Title: International Finance
Course Code: ECO-610

Week	Topics
1	The foreign exchange market: The basis of the foreign exchange market, Organization of the market, Exchange rate system.
2	The International Character of the Foreign Exchange market, Exchange risk. Forward Exchange, covered interest arbitrage.
3	The balance of payments: Definitions and Conventions, Balance of payments accounting, The US Balance of payments, Reporting difficulties, balance of payments equilibrium. Accounting balances
4	The balance of payments problem a basic model: The basic assumptions, International equilibrium
5	The adjustment process 1, The adjustment process 2 , Counter trade, Temporary versus fundamental disequilibrium.
6	The price adjustment mechanism: The Partial equilibrium Model, schedules for imports and exports, equilibrium in the commodity market, the effects of devaluation.
7	Price elasticities of demand for imports and exports, the J-curve effect, supply and demand for foreign exchange, non trade goods. A digression, the price specie flow mechanism, effective exchange rate, real exchange rates
8 & 9	The income adjustment mechanism: Income determination in a closed economy, income determination in an economy, the foreign trade multiplier, devaluation: Absorption versus elasticities, policy mix for internal and external balance, foreign repercussions, macroeconomic interdependence in real world, direct controls, switching policies during the great depression.
10	World debt crises: The dimensions of the debt crisis, International capital movements, The capital transfer process, The recycling of petrodollars, The causes of the world debt crisis, The costs of sovereign default, The secondary market for debt of developing countries, Alternative policy options.
11 & 12	Fiscal and monetary policy for internal and external balance: The IS-LM model, Balance of payments equilibrium the external balance schedule and its derivation, The effects of fiscal and monetary policy, The compatibility of internal and external balance, The assignment problem, Criticism of the fiscal monetary policy, Payments imbalances and the supply of money, the monetary process.
13	Flexible versus fixed exchange rates: The theory of employment with flexible exchange rates, The IS-LM model with flexible exchange rates, Exchange rate overshooting, stabilization policy: A digression, exchange rate regimes and stabilization, Further arguments for and against flexible exchange rates.
14	The monetary approach: an outline of the monetary approach, The basic model of the monetary approach, policy implications of the monetary approach, Reconciliation between the monetary and traditional approach, The purchasing power parity theory, Big macs and the PPP theory, The monetary approach to exchange rate deamination

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15	International monetary system: Types of international monetary system, The characteristics of a good international monetary system, Adjustment liquidity and confidence, The gold standard, The interwar period, The Bretton woods system, The present system of managed flexibility.

Recommended Books:

1. Dominick Salvatore, International Economics: Trade and Finance, Latest Edition, Published by Wiley.
2. Miltiades Chacholiades, Principles of International Economics Latest Edition, Published by, McGraw Hill Co. New York.

Additional Readings

1. Maurice D. Levi, International Finance, 5th edition, , Published by Routledge
2. Sodersten, B.O. , International Economics, Latest Edition, Published by, Harper and Row New York,,
3. Caves, R.E. & Jones, R.W World Trade and Payments. An Introduction Latest Edition, , Published by, Boston, Little Brown, and Company, (Inc.)
4. James C. Ingram, International Economics 3rd Edition , Published by, John Wiley & Sons, 1994.
5. Grubel, Herbert G., International Economics Latest Edition, Published by, Homwood Illinoesa, Richard D. Irwin (Ins),Latest

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Semester: 8th
Course Title: Islamic Finance
Course Code: ECO-612

Week	Topics
1	Some Preliminary Issues: Some preliminary points, belief in divine guidance, difference in capital and Islamic economy, Islamic concept of justice, Shariah law
2	Developments in modern Islamic economics and finance, Asset-backed financing, capital and entrepreneur, present practices of Islamic banking
3	Musharakah: Introduction, partnership, concept, features, and rules, distribution, ratio, and sharing of profit and loss, management and termination of Musharakah
4	Business of Mudarabah, features & conditions, distribution, termination, and combination with Musharakah, modes of financing, running of Musharakah, risks and losses, and diminishing Musharakah in business, services & trade, mechanics,
5	Murabahah: Basic rules, Bai'Mu'ajjal, features and issues, pricing differences, profit/loss sharing, use of interest rate and benchmark, promise to purchase, securities & guarantees, Bai'Bithamin Ajil
6	Panelty of default, alternative suggestions, roll over principle, rebates & calculations, rescheduling & securitization and basic mistakes in Murabahah
7	Ijarah: Basic rules, rental determination and leasing commitments, relations with parties, expenses and liabilities, variable long term rentals, features & conditions
8	Penalties, termination of lease & insurance of assets, assigning of lease and Ijarah securitization.
9	Salam & Istisna: Meaning, conditions & modes of financing, rules of Salam in sukuk
10	Istisna, differentiation with Salam and Ijarah, time of delivery, modes of financing, securitization
11	Islamic Investment Funds: principles, investment and equity funds, conditions of investment
12	Ijarah fund, commodity & Murabahah fund, Bai'-al-dain & mixed fund
13	The Principle of Limited Liability: The principle, waqf, baitul-mal
14	Joint stock, inheritance under debt & liabilities of the master of a slave
15	The performance of Islamic Banks: A realistic evaluation, assignment of the case study for the practical and qualitative approach to understand the difference between conventional and Islamic banking

Recommended Books:

1. Usmani, M. T. (latest edition). *An introduction to Islamic finance*. Maktaba Ma'ariful Quran, Quranic Studies Publishers.
2. Iqbal, Z., & Mirakhor, A. (2nd Edition). *An introduction to Islamic finance: Theory and practice*. John Wiley & Sons (Asia) Pte. Ltd.

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Further Readings:

1. Ahmad, K. (1980). *Studies in Islamic finance*. Leicester, The Islamic Foundation, United Kingdom.
2. Ayub, M. (2007). *Understanding Islamic finance*. John Wiley and Sons Ltd., The Atrium, Southern Gate, Chichester, West Sussex, England.
3. Maududi, S. (2011). *First principles of Islamic economics*. Islamic Foundation, Markfield, United Kingdom.

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Semester: 8th
Course Title: Financial Economics
Course Code: ECO-614

Weak	Topics
1	**1. Introduction to Financial Economics** Financial economics, Real assets versus financial assets Role of financial assets, Risks associated with investing in financial assets, Users of the fin system, Role of financial markets
2	Classification or structure of financial markets Financial instruments: classification and uses, Characteristics of financial instruments, Types of financial instruments w.r.t. Time, Debt vs equity, Financial innovation
3	**2. Organizations, Stakeholders and Shareholders' Returns** Organizations, Agency theory and the principal-agent problem, Stakeholders: types and influence Stakeholder: influence and conflict, Shareholders' interest, Measuring shareholder wealth
4 & 5	**3. Understanding Interest Rates** Interest rate: definition, types of credit market instruments, Present value, Yield to maturity. Other measures of interest rates, Interest rates and returns, Real and nominal interest rates. **4. Behavior of interest rates** Loanable funds framework, Changes in equilibrium interest rates
6	**5. Risk and portfolio choice** Risk: definition, Risk: measurement, Risk aversion, the risk premium, and the risk-return tradeoff, Sources of risk: idiosyncratic and systematic risk, Theory of portfolio choice, Diversification
7	**6. Risk and term structure of interest rates** Risk and term structure of interest rates, Risk structure of interest rates, Three Facts About The Risk Structure, Default Risk, Liquidity, Income Tax
8	Term structure of interest rates The expectations theory, The segmented markets theory, The liquidity premium theory
9	**7. Financial Derivatives** Hedging, Interest-Rate Forward Contracts, Pros and Cons of Forward Contracts, Financial Futures, Contracts and Markets, Organization of Trading in Financial Futures Markets, The Globalization of Financial Futures Markets, Explaining the Success of Futures Markets, Application Hedging Foreign Exchange Risk, Hedging Foreign Exchange Risk with Forward Contracts, Hedging Foreign Exchange Risk with Futures Contracts
10	Options, Option Contracts, Profits and Losses on Option and Futures Contracts, Factors Affecting the Prices of Option Premiums, Interest-Rate Swaps Interest-Rate Swap Contracts, Advantages of Interest-Rate Swaps, Disadvantages of Interest-Rate Swaps, Financial Intermediaries in Interest-Rate Swaps
11	**8. Financial Intermediation** Concept of financial intermediation, Need and benefits of financial intermediation, Kinds of financial intermediaries, The functions of financial intermediaries

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12	Finance for households Finance for firms, Finance for government
13	**9. Stock Exchange Market** Concept of Stock exchange market, A note on KSE 100 index
14	A model of stock prices, Pakistan stock exchange (PSX)
15	**10. Capital Market Equilibrium** The Capital Asset Pricing Model (CAPM) Arbitrage Pricing Theory (APT)

Recommended Books:

1. Zvi Bodie, Robert C Merton, David L Cleeton (2009). Financial Economics, Pearson Educauion Inc.
2. Frederic S. Mishkin, The economics of money, banking, and financial markets, 7th Edition The Addison-Wesley series.
3. Sheikh, M. R. Financial Economics, *2nd Edition. Target Publications.*

Additional Readings

1. Frank J. Fabozzi, Edwin H. Neave, Guofu Zhou (2011). Financial Economics, John Wiley & Sons.
2. Chris Jones (2008). Financial Economics. Routledge.
3. James Bradfield. (2007). Introduction to the economics of financial markets. Oxford University Press
4. Stephen LeRoy, Jan Werner (2000). Principles of Financial Economics, Cambridge University Press.

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Semester: 8th
Course Title: Research Project
Course Code: CAP-601

A capstone project allows students to bring together the concepts, principles and methods that they have learned in their course of study and to apply their knowledge and acquired competencies to address the real-world problems. A capstone project is multifaceted body of work that serves as a culminating academic and intellectual experience for students. The capstone project (preferably undertaken after the fourth semester) must be supervised and graded by a faculty member as per the protocols prescribed by the concerned department. This is a mandatory degree award requirement of 3 credit hours for all undergraduate/equivalent degree programs (except for Associate Degrees).

A **capstone project** is essentially a **culminating academic experience** that allows students to apply the knowledge, skills, and concepts they have learned throughout their degree program to a **real-world problem or research question**. Think of it as the "grand finale" of your degree—it integrates theory, practical skills, and independent analysis.

For **BS Economics students**, a **capstone project** should integrate the knowledge they have gained in microeconomics, macroeconomics, econometrics, development economics, public finance, and other specialized fields. The project should apply **theoretical concepts, data analysis, and policy evaluation** to a real-world problem.

Capstone Project Structure

1. **Introduction:** Problem statement, objectives, research questions.
2. **Literature Review:** Summary of prior research relevant to the topic.
3. **Data & Methodology:** Sources of data (PBS, SBP, FBR, TDAP), econometric models, survey tools.
4. **Analysis:** Statistical/econometric analysis, charts, tables.
5. **Findings & Discussion:** Interpretation of results, policy implications.
6. **Conclusion & Recommendations:** Practical solutions or policy guidance.

Some ideas for capstone projects are:

1. Public Finance & Fiscal Policy

- **Project Idea:** Analyze the impact of government taxation policies on income inequality in Pakistan.
- **Methods/Tools:** Regression analysis, Gini coefficient calculation, data from FBR or PBS.
- **Skills Gained:** Policy evaluation, fiscal analysis, statistical modeling.
- **Project Idea:** Evaluate the effectiveness of subsidies on essential commodities (like wheat, sugar, or fertilizer).
- **Methods/Tools:** Cost-benefit analysis, household surveys, price elasticity calculations.
- **Skills Gained:** Economic policy assessment, field survey design, data interpretation.

2. Development & Poverty Economics

- **Project Idea:** Study the impact of microfinance programs on household income and poverty alleviation.
- **Methods/Tools:** Field surveys, difference-in-differences analysis, SPSS/Stata data analysis.
- **Skills Gained:** Development economics research, applied econometrics, impact evaluation.
- **Project Idea:** Examine rural-urban disparities in education and health outcomes in South Punjab.
- **Methods/Tools:** Data collection, regression modeling, GIS mapping.

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- **Skills Gained:** Socioeconomic analysis, data visualization, policy recommendations.

3. Labor Economics & Human Capital

- **Project Idea:** Analyze the relationship between education levels and employment opportunities in Pakistan.
- **Methods/Tools:** Econometric modeling, survey data analysis.
- **Skills Gained:** Labor market analysis, human capital evaluation, report writing.
- **Project Idea:** Study the effect of gender inequality on labor market participation.
- **Methods/Tools:** Regression analysis, cross-sectional survey data.
- **Skills Gained:** Gender economics, policy insights, quantitative analysis.

4. Banking, Finance & Monetary Policy

- **Project Idea:** Evaluate the determinants of bank profitability in Pakistan (using internal and external factors).
- **Methods/Tools:** Panel data analysis, financial ratio analysis, Stata/Excel.
- **Skills Gained:** Banking analytics, financial econometrics, practical policy insights.
- **Project Idea:** Study the impact of credit availability on SME growth in Pakistan.
- **Methods/Tools:** Surveys with SMEs, regression, time-series data analysis.
- **Skills Gained:** Financial economics, credit market evaluation, report writing.

5. Trade & International Economics

- **Project Idea:** Analyze the effects of trade liberalization on Pakistan's exports.
- **Methods/Tools:** Econometric modeling, export data analysis from TDAP or PBS.
- **Skills Gained:** Trade policy analysis, econometric application, report preparation.
- **Project Idea:** Examine the impact of exchange rate volatility on imports and exports.
- **Methods/Tools:** Time-series analysis, correlation and regression, forecasting.
- **Skills Gained:** International economics, currency risk evaluation, data analysis.

6. Environmental & Resource Economics

- **Project Idea:** Study the economic impact of smog and air pollution in major cities of Pakistan.
- **Methods/Tools:** Cost-benefit analysis, survey of health and productivity losses, regression analysis.
- **Skills Gained:** Environmental economics, policy evaluation, data interpretation.
- **Project Idea:** Evaluate water resource management policies and their impact on agriculture productivity.
- **Methods/Tools:** Data collection, field surveys, econometric analysis.
- **Skills Gained:** Resource economics, agricultural policy assessment, applied research.

7. Behavioral & Experimental Economics

- **Project Idea:** Study consumer behavior and the "bandwagon" or "snob" effect in urban markets.
- **Methods/Tools:** Surveys, experimental design, statistical analysis.
- **Skills Gained:** Behavioral economics, data analysis, survey design.
- **Project Idea:** Analyze household food wastage patterns and their socioeconomic determinants.
- **Methods/Tools:** Surveys, regression modeling, descriptive statistics.
- **Skills Gained:** Behavioral research, policy insights, applied econometrics.

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*LIST OF NATURAL SCIENCE COURSES

(3 Credit Hours)

Course Code	Names of Courses	Credit Hours
NSC-501	General Science	3 – Credit Hours
NSC-502	Environmental Science	3 – Credit Hours

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Semester: 1st
Course Title: General Science
Course Code: NSC-501

Weeks	Topics
1–2	**Introduction to Science**: Definition and nature of science; what qualifies as science; importance of science; scientists and scientific practice; key terminology—fact, hypothesis, theory, law
3–5	**Evolution of the Scientific Method across Civilizations**: Prehistoric science; Mesopotamian and Egyptian contributions; Greek science; Chinese science; South Asian scientific traditions; Arab/Islamic scientific contributions; European scientific developments. Forms of reasoning: inductive, deductive, abductive, hypothetico-deductive, falsification
6–7	**The Modern Scientific Method**: Structure of modern science; advantages and limitations; emergence of science as the dominant approach to understanding the natural world
8	**Branches of Science – Physics**: Overview of scientific disciplines; major themes in Physics; applications; experimental approaches
9–10	**Branches of Science – Chemistry & Biology**: Major themes, applications, and experiments. Core theories: Gravity (Physics), Atomic Theory (Chemistry),
11	Evolution by Natural Selection (Biology). Relevance to academic majors and professions; practical applications
12–13	**Pseudoscience and Fake Science**: Characteristics of pseudoscience; causes and consequences; case studies (Cold Fusion, Telepathy, N-rays, etc.)
14–15	**Scientific Communication**: Peer review process (benefits and misuse); importance of controls and replication; replication crisis in modern science

Recommended Books:

1. McCracken, J. T. (2016). *The sciences: An integrated approach* (7th ed.). Pearson Education
2. Price, G. (2006). *Biology: An Illustrated Guide to Science*. Chelsea House Publishers.
3. Adams, S. (2019). *Essentials of Physics*. Mercury Learning and Information.
4. Strahler, A. N. *Science of Earth History: Evolution–Creation Controversy*

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Semester: 1st
Course Title: Environmental Science
Course Code: NSC-502

Week	Topics
1	Introduction to Environmental Science: Definition, scope, and importance; Interdisciplinary nature of environmental studies
2	Ecosystems and Ecology: Structure and function of ecosystems; Energy flow and nutrient cycles
3	Biodiversity and Conservation: Importance of biodiversity; Threats to biodiversity; Conservation strategies
4	Natural Resources: Renewable vs non-renewable resources; Water, soil, forest, and mineral resources; Sustainable management
5	Environmental Pollution: Overview of types (air, water, soil, noise, radioactive); Sources and effects on human health and ecosystems
6	Air Pollution and Climate Change: Major air pollutants; Greenhouse effect, global warming, ozone depletion; Mitigation strategies
7	Water and Soil Pollution: Causes and effects; Water quality standards and soil degradation; Treatment and management
8	Waste Management: Solid, liquid, and hazardous waste; Recycling, composting, and sustainable disposal methods
9	Environmental Impact Assessment (EIA): Purpose and process of EIA; Case studies
10	Environmental Policies and Legislation: National environmental laws in Pakistan; International agreements and protocols
11	Sustainable Development: Concept and principles; Balancing economic growth and environmental protection
12	Energy and Environment: Conventional vs renewable energy sources; Energy conservation and environmental impact
13	Urbanization and Environmental Challenges: Urban sprawl, pollution, and resource depletion; Strategies for sustainable urban development
14	Human Health and the Environment: Environmental determinants of health; Disease and pollution links
15	Review and Case Studies: Case studies on environmental problems and solutions; Class discussion and project presentations

Recommended Books:

1. Botkin, D. B., & Keller, E. A. (2011). *Environmental science: Earth as a living planet* (7th ed.). Wiley.
2. Bharucha, E. (2013). *Textbook of environmental studies for undergraduate courses*. University Press.
3. Cunningham, W. P., & Cunningham, M. A. (2017). *Principles of environmental science: Inquiry and applications* (7th ed.). McGraw-Hill Education.
4. Rajagopalan, R. (2016). *Environmental studies: From crisis to cure* (2nd ed.). Oxford University Press.



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**LIST OF SOCIAL SCIENCES COURSES

(2 Credit Hours)

Course Codes	Names of Courses	Credit Hours
SOG-501	Introduction to Law	2 – Credit Hours
SOG-502	Introduction to Public Administration	2 – Credit Hours
SOG-503	Introduction to Criminology	2 – Credit Hours
SOG-504	Introduction to Education	2 – Credit Hours
SOG-505	Introduction to Demography	2 – Credit Hours



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Semester: 2nd
Course Title: Introduction to Law
Course Code: SOG-501

Week	Topics
1	Introduction to Law: Definition, nature, and purpose of law; Importance of law in society
2	Sources of Law: Constitution, statutes, case law, customary law, and international law
3	Legal Systems: Common law, civil law, religious law, and customary law systems
4	Classification of Law: Public law vs private law; Criminal law, civil law, administrative law, constitutional law
5	Legal Rights and Duties: Concept of rights and duties; Fundamental rights and obligations under law
6	Constitutional Law: Basic principles of constitutional law; Separation of powers; Rule of law
7	Criminal Law: Nature and purpose; Types of crimes; Criminal liability
8	Civil Law: Contracts, torts, property law; Legal remedies and enforcement
9	Administrative Law: Principles and functions; Role of government agencies; Judicial review
10	International Law: Public international law; Treaties, conventions, and international organizations
11	Human Rights Law: Universal human rights; Rights protected under Pakistani law; Enforcement mechanisms
12	Environmental and Labour Law: Key provisions; Rights and responsibilities; Regulatory frameworks
13	Legal Institutions in Pakistan: Courts, tribunals, law enforcement agencies; Role in justice delivery
14	Legal Profession and Ethics: Role of lawyers; Professional ethics and responsibilities
15	Review and Case Studies: Analysis of landmark cases; Class discussions and presentations

Recommended Books:

1. Garner, B. A. (Ed.). (2019). *Black's Law Dictionary* (11th ed.). Thomson Reuters.
2. Llewellyn, K. N. (1960). *The Common Law Tradition: Deciding Appeals*. Little, Brown and Company.
3. Hilaire, D. (2015). *Public International Law: Text, Cases, and Materials* (3rd ed.). Oxford University Press.
4. Harlow, C., & Rawlings, R. (2009). *Law and Administration* (3rd ed.). Cambridge University Press.
5. Shah, M. I. (2020). *Constitutional and Administrative Law in Pakistan*. Law Publishing House.
6. Mahmud, A. (2018). *Human Rights Law in Pakistan*. Oxford University Press.

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Semester: 2nd
Course Title: Introduction to Public Administration
Course Code: SOG-502

Week	Topics
1 & 2	Introduction to Public Administration Concept and scope, Public and private administration, Role in modern democratic state, Its role in Pakistan
3 & 4	Approaches to study of Public Administration Classical approach, Scientific Approach, Behavioral Approach, Ecological Approach. Relations with other social sciences, Public Administration and economics
5 & 6	Democratic administration, Bureaucracy, Public Administration in Islamic Perspective, Characteristics of Islamic Administration
7	Study of Public Administration in Pakistan
8	Principles and tools of Administration Principle of political direction, Principle of Authority, Principle of Responsibility, Principle of social necessity
9	Principle of efficiency, Principle of Organization, Principle of Public Relations, Principle of evolution and progress, Principle of Research, Bureaucratic Principle
10	Tools of Public Administration Distribution of Power
11 & 12	Organization Types, Formal and informal organizations Theories of Organization, Span of Control, Unity of Command, Centralization vs decentralization
13	Delegation; Structure of the Organization
14	Planning, Decision Making
15	Communication and Administrative Accountability, Good Governance, Leadership, Financial Administration, Public Relations

Recommended Books

1. Robert B. Denhardt, Public Administration: An Action Orientation (4th Ed).
2. Sabharwal, M. (2013) Public Administration in South Asia: India, Bangladesh and Pakistan, http://www.crcpress.com/product/isbn/9781439869116
3. Nigro and Nigro, Modern Public Administration (Latest Ed.)
4. Ernest Dale Management theory and Practice. McGraw-Hill Kogakusha, Tokyo.
5. Koontz. O Donnell. Principal of Management McGraw-Hill Kogakusha Ltd Sydney
6. Any reputable English (daily) newspaper, preferably Dawn.
7. Weekly journals on current affairs, e.g. Newsweek and Time etc.
8. Professional journals like Public Administration Review, and Administrative Science Quarterly.

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Semester: 2nd

Course Title: Introduction to Criminology

Course Code: SOG-503

Week	Topics
1	Introduction to Criminology: Definition, scope, and importance of criminology; Relationship with sociology and law
2	History and Development of Criminology: Classical and positivist schools; Key theorists and contributions
3	Theories of Crime I: Classical and biological theories; Rational choice theory; Lombroso's ideas
4	Theories of Crime II: Psychological and sociological theories; Strain theory, social learning theory, labeling theory
5	Types of Crimes: Violent crime, property crime, white-collar crime, organized crime, cybercrime
6	Juvenile Delinquency: Causes, types, prevention, and rehabilitation
7	Victimology: Study of victims; Types of victims; Victim-offender relationship; Victim support and rights
8	Crime Measurement: Official statistics, surveys, self-report studies; Advantages and limitations
9	Penology: Concept and purpose of punishment; Rehabilitation, deterrence, and restorative justice
10	Policing and Law Enforcement: Role of police, investigation methods, community policing
11	Criminal Justice System: Courts, correctional institutions, and procedural mechanisms in Pakistan
12	Criminology in Pakistan: Crime trends, challenges, and law enforcement strategies
13	Contemporary Issues in Criminology: Terrorism, drug abuse, cybercrime, and organized crime
14	Research in Criminology: Methods, ethics, and data collection techniques
15	Review and Case Studies: Analysis of landmark cases; Class discussions and student presentations

Recommended Books:

1. Siegel, L. J. (2020). *Criminology: The Core* (7th ed.). Cengage Learning.
2. Cox, S., & Griffiths, M. (2018). *Criminology: A Sociological Introduction* (6th ed.). Routledge.
3. Chambliss, W. J., & Seidman, R. B. (2020). *Law, Order, and Power* (6th ed.). Routledge.
4. Akhtar, S. (2019). *Criminology in Pakistan: Trends and Challenges*. Lahore: Vanguard Books.
5. Giddens, A., Duneier, M., Appelbaum, R., & Carr, D. (2018). *Introduction to Sociology* (10th ed.). W. W. Norton & Company.

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Semester: 2nd
Course Title: Introduction to Education
Course Code: SOG-504

Week	Topic
1	**Chapter 1: Basics of Education** • Concept and meaning of education Aims of education in national perspective
2 & 3	• Islamic concept of education Modes of Education, formal, informal and non-formal education, Philosophical foundations of education
4, 5 & 6	**Chapter 2: Teaching** • Role of teacher in classroom: teaching philosophy and classroom management Principles of effective teaching , Qualities of a good teacher, Teaching strategies and methods, Teaching models
7	**Chapter 3: Curriculum** • Old and new concepts of curriculum • Principles of curriculum construction
8 & 9	• Curriculum Models, Curriculum development in Pakistan
10	**Chapter 4: Education and Psychology** • Relationship between psychology and education • How do we learn • Laws of learning
11 & 12	• Factors affecting students' learning • Theories of Motivation (Intrinsic Motivation and Extrinsic Motivation) • Individual differences, Why do people differ, How to deal with individual differences
13	**Chapter 5: Assessment and Evaluation** • Concept of assessment • Concept of evaluation
14 & 15	• Types of assessment and evaluation • Internal and external evaluation • Essay type test, Objective type test • Course Wrap up

Recommended Books

1. Downey, M., & Kelly, A. V. (1986). *Theory and practice of education*. Sage.
2. Lowery, C. L., &Jenlink, P. M. (Eds.). (2019). *The Handbook of Dewey's*

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Educational Theory and Practice. BRILL.

3. Hattie, J., & Yates, G. C. (2013). *Visible learning and the science of how we learn*. Routledge.
4. Moore, A. (2012). *Teaching and learning: Pedagogy, curriculum and culture*. Routledge.
5. Jarvis, P. (Ed.). (2006). *The theory and practice of teaching*. Routledge.
6. Daniels, H., Lauder, H., & Porter, J. (Eds.). (2012). *Educational theories, cultures and learning: A critical perspective*. Routledge.
7. Boyle, B., & Charles, M. (2016). *Curriculum development: A guide for educators*. Sage.
8. Secolsky, C., & Denison, D. B. (Eds.). (2012). *Handbook on measurement, assessment, and evaluation in higher education*. Routledge.
9. ul Amin, S. N., & Jan, M. H. *Educational Measurement and Evaluation*. Evincepub Publishing.
10. Mangal, S. K., &Mangal, S. (2019). *Assessment For Learning*. PHI Learning Pvt.

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Semester: 2nd
Course Title: Introduction to Demography
Course Code: SOG-505

Week	Topics
1	Introduction to Demography: Definition, scope, and importance; Relationship with sociology, economics, and public policy
2	Basic Concepts in Demography: Population, fertility, mortality, migration, population growth
3	Sources of Demographic Data: Census, surveys, registration systems, international sources
4	Population Theories: Malthusian theory, demographic transition theory, and modern perspectives
5	Fertility: Measures of fertility; Determinants; Fertility trends and patterns
6	Mortality: Mortality measures; Life tables; Infant and child mortality; Causes of death
7	Migration: Types of migration; Causes and consequences; Internal and international migration
8	Population Growth and Structure: Growth rates, age-sex composition, dependency ratio
9	Population Policies: Objectives, types, and effectiveness; Family planning programs
10	Urbanization and Population Distribution: Patterns, causes, and social implications
11	Population and Environment: Population pressure, resource use, and sustainable development
12	Population and Development: Role of population in economic and social development
13	Demographic Methods I: Measures of fertility, mortality, and migration
14	Demographic Methods II: Population projections, life table calculations, and population modeling
15	Review and Case Studies: Analysis of demographic trends in Pakistan and globally; Student presentations

Recommended Books:

1. Weeks, J. R. (2015). *Population: An Introduction to Concepts and Issues* (12th ed.). Cengage Learning.
2. Bogue, D. J., & Chamie, J. (2013). *Principles of Demography*. Springer.
3. Caldwell, J. C., & Schindlmayr, T. (2003). *Explanations of Demographic Transition: A Critical Review*. Population Studies.
4. Mahmood, S. (2018). *Demography of Pakistan: Trends and Challenges*. Karachi: Oxford University Press.
5. Shryock, H. S., Siegel, J. S., & Associates. (2011). *The Methods and Materials of Demography* (2nd ed.). Academic Press.

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***LIST OF ARTS & HUMANITIES COURSES

(2 Credit Hours)

Course Codes	Names of Courses	Credit Hours
ATH-501	Introduction to Political Science	2 – Credit Hours
ATH-502	Introduction to International Relations	2 – Credit Hours
ATH-503	Introduction to History	2 – Credit Hours
ATH-504	Introduction to Psychology	2 – Credit Hours
ATH-505	Introduction to Sociology	2 – Credit Hours
ATH-506	Introduction to Fine Arts / Visual Art	2 – Credit Hours
ATH-507	Advertising & Marketing Communication	2 – Credit Hours
ATH-508	Gender Studies	2 – Credit Hours



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Semester: 4th
Course Title: Introduction to Political Science
Course Code: ATH-501

Week	Topics
1	**Concepts in Political Science** What is Political Science? Definition, Nature, and Scope
2	Relationship of Political Science with other **Sciences.** Sub-fields of Political Science.
3	**State** Concept, origin and evolution. Elements and Kinds, Islamic concepts of State
4	Nation and Sovereignty.
5	**Basic concepts of Political Science** Power, Authority, Legitimacy.
6	**Organs of Government** Legislature, Executive & Judiciary.
7	**Forms of State** Unitary, Federation, Confederation.
8	**Forms of Government** Democracy, Authoritarianism.
9	**Forms of Government** Parliamentary forms of Government, Presidential forms of Government,
10	**Political System** Definition, Characteristics and Functions
11	**Constitution** Definition, Sources, kinds.
12	**Law** Definition, Sources, kinds, Rule of law.
13	**Political Parties** Kinds, Structures, Functions.
14	**Political Ideologies** Socialism, Marxism, Capitalism, Nationalism, Political Islam.
15	Salient Features of the US & British Constitutions

Recommended Books:

1. Haq, M.-ul. (1996). *Theory and practice in political science*. Bookland.
2. Haq, M.-ul. (n.d.). *Modern constitution*. Bookland.
3. Mackenzie, I. (Ed.). (2005). *Political concepts: A reader and guide*. Edinburgh University Press.
4. Mahajan, V. D. (2006). *Political theory: Principles of political science*. S. Chand & Company.
5. Agarwal, R. C. (2006). *Political theory (Principles of political science)*. S. Chand & Company.
6. Sarwar, M. (1996). *Introduction to political science*. Ilmi Kutub Khana.
7. Jackson, R., & Jackson, D. (1997). *A comparative introduction to political science*. Prentice Hall.
8. Roskin, M. G. (1997). *Political science: An introduction*. Prentice Hall.



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9. Anderson, R., Christol, C., Greene, T., & Lowi, T. (n.d.). *Introduction to political science*. National Book Foundation.
10. Dorf, M. C., & Morrison, T. W. (n.d.). *Constitutional law: Principles, cases, and context*. Oxford University Press.
11. Wilson, J. Q., DiIulio, J. J., Jr., & Bose, M. (n.d.). *American government: Institutions and policies*.
12. Kollman, K. (n.d.). *The American political system*.
13. Loughlin, M. (n.d.). *The British constitution: A very short introduction*.
14. Bogdanor, V. (n.d.). *The British constitution in the twentieth century*.
15. Siddiqui, S., & Ud Din, K. (n.d.). *Political science: An introduction*. Qureshi Publishers.

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Semester: 4th
Course Title: Introduction to International Relations
Course Code: ATH-502

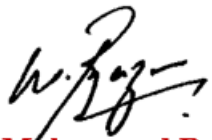
Week	Topics
1	**Meaning, Definitions, and Scope of IR**- Definitions by scholars (e.g., Carr, Morgenthau, Burchill)- Nature of IR: Science or art?- Scope: Political, economic, cultural, and security dimensions
2–3	**Nature, Evolution, and Significance of IR Concepts and Ideas**- Historical evolution: Classical to modern IR- Key concepts: Power, security, diplomacy, war- Significance of studying IR in the 21st century
4	**Nation-State: Sovereignty and Security; System and Sub-System**- Nation-state concept- Sovereignty: Internal and external- Security: National and international- International system vs. regional subsystems
5	**Approaches to the Study of IR**- Idealism / Liberalism- Realism / Classical realism- Behaviouralism- Systemic approach- Critical theories
6	**Realism and Idealism**- Realism: Key assumptions, proponents (Morgenthau, Waltz)- Idealism: Historical context, goals, proponents- Comparison of both approaches
7	**Liberalism and Behaviouralism**- Liberalism: Institutions, cooperation, interdependence- Behaviouralism: Empirical methods, scientific study of IR
8	**Foreign Policy and Diplomacy**- Definition and determinants of foreign policy- Types: isolationist, interventionist, cooperative- Diplomacy: Definition, types (bilateral, multilateral), tools
9	**Power and Balance of Power**- Concept of power: Hard power, soft power- Balance of power theory: Classical and modern- Alliances and counter-alliances
10	**National Interest**- Definition and importance- Components: Security, economic, cultural, ideological- Case studies of national interest in practice
11–12	**Regionalism and Globalization**- Regionalism: Definition, regional organizations (EU, SAARC, ASEAN)- Globalization: Economic, political, cultural dimensions- Impact of globalization on sovereignty and national policy
13	**State and Non-State Actors**- State actors: Nation-states, superpowers- Non-state actors: NGOs, IGOs, MNCs, terrorist organizations- Roles and influence in global politics
14	**Human Rights and International Relations**- Concept and evolution of human rights- International human rights law and organizations (UN, Amnesty International)- Humanitarian intervention and responsibility to protect (R2P)
15	**Religion, Ethics, Morality, and Justice in IR**- Role of religion in shaping foreign policy- Ethical frameworks in international politics- Justice in war and peace; case studies (e.g., Nuremberg Trials, international courts)

Recommended Books:

1. Bull, H. N. (1984). *The expansion of international relations*. Oxford University Press.
2. Chan, S. (1984). *International relations in perspective: The pursuit of security, welfare, and justice*. Macmillan.
3. Columbus, T. (1992). *Introduction to international relations: Power and justice*. Prentice Hall.

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4. Genest, M. A. (1996). *Conflict and cooperation: Evolving theories of international relations*. Thomson.
5. Goldstein, J. (2003). *International relations*. Pearson Education.
6. Griffiths, M., & O'Callaghan, T. (2003). *International relations: The key concepts*. Routledge.
7. Groom, A. J. R., & Light, M. (1999). *Contemporary international relations: A guide to theory*. Pinter.
8. Hartmann, F. H. (1983). *The relations of nations*. Macmillan.
9. Henderson, C. W. (1998). *International relations: Conflict and cooperation at the turn of the twenty-first century*. McGraw-Hill.
10. Hoffmann, S. (1960). *Contemporary theory in international relations*. Prentice Hall.
11. Holsti, K. J. (1983). *International politics: A framework for analysis*. Prentice Hall.
12. Hursch, J. A. (1990). *Theories of international relations*. National Defense University.
13. Jackson, R., & Sørensen, G. (2003). *Introduction to international relations: Theories and approaches*. Oxford University Press.
14. Jones, W. S. (1991). *The logic of international relations*. HarperCollins.
15. Kegley, C. W., Jr., & Wittkopf, E. R. (1993). *World politics: Trends and transformation* (4th ed.). St. Martin's Press.
16. Keohane, R. O. (1989). *International institutions and state power: Essays in international relations theory*. Westview Press.
17. Lawson, S. (2003). *International relations*. Polity Press.
18. Miller, L. H. (1990). *Global order: Values and power in international relations*. Westview Press.
19. Morgenthau, H. J. (1978). *Politics among nations*. Alfred A. Knopf.
20. Palmer, N. D., & Perkins, H. C. (2004). *International relations*. A.I.T.S. Publishers. (Original work published earlier)
21. Papp, D. S. (1988). *Contemporary international relations* (2nd ed.). Macmillan.
22. Pearson, F. S., & Rochester, J. M. (1988). *International relations: The global condition in the late twentieth century*. Random House.
23. Qutb, S. (1954). *World peace and Islam*. Lahore.
24. Ray, J. L. (1988). *Global politics*. Houghton Mifflin.
25. Rosen, S. J. (1980). *The logic of international relations* (3rd ed.). Winthrop.
26. Roskin, M. G., & Berry, N. O. (1993). *The new world of international relations* (2nd ed.). Prentice Hall.
27. Rourke, J. T., & Boyer, M. A. (1996). *International politics on the world stage*. McGraw-Hill.
28. Schwarzenberger, G. (1982). *Power politics*. University College Press.
29. Spanier, J. (1981). *Games nations play*. Harper & Row.
30. Wright, Q. (1982). *The study of international relations*. Irvington Publishers.
31. Ziegler, D. W. (1980). *War, peace, and international politics* (5th ed.). Little, Brown and Company



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Semester: 4th
Course Title: Introduction to History
Course Code: ATH-503

Week	Topics
1	Concept of History: Meaning, Nature, Scope; Memory, Records, Utility and Importance of History
2	Fundamental Questions and Concepts: Identity, Time, Space, Relativity, and Historical Process
3	Sources of History: Primary and Secondary Sources; Classification and Evaluation
4	History as a Discipline: History as Science, Social Science, and Art (Debates and Perspectives)
5	Auxiliary and Ancillary Disciplines of History; Archives, Libraries, and Museums
6	Forms and Branches of Historical Knowledge
7	Continuities and Discontinuities in History
8	Historical Narratives and Historical Remains: Forms of Narratives; Material Culture and Remains
9	The Concept of Civilization: Meaning, Nature, and Characteristics
10	Ancient Civilizations of Mankind: Egyptians, Babylonians, and Greeks
11	Muslim Empires and Civilization and Their Contributions: Umayyads, Abbasids, Ghaznavids, Ottomans, and Mughals
12	Ancient Civilization of Pakistan: Harappan Civilization—Trends, Symbols, and Mohenjo-Daro
13	Gandhara Civilization: Taxila Sites and Cultural Interpretation
14	Archaeology, Architecture, and Historical Remains; Historical Monuments of Pakistan (Sultanate, Mughal, and British Periods—Wazir Khan Mosque, Lahore Fort)
15	Heritage and Monuments of Multan: Architectural Significance of the Tomb of Shah Rukn-e-Alam, Clock Tower of Multan, and Tomb of Shah Gardez

Recommended Books:

1. Bosworth, C. E. (1996). *The new Islamic dynasties*. Columbia University Press.
2. Collingwood, R. G. (1994). *The idea of history*. Oxford University Press.
3. Craig, A. M., Kagan, D., Graham, W. A., Ozment, S., & Turner, F. M. (2001). *The heritage of world civilizations*. Prentice Hall.
4. Dani, A. H. (1967). *A short history of Pakistan: Pre-Muslim period*. University of Karachi.
5. Khan, A. N. (1983). *Multan: History and architecture*. Institute of Islamic History, Culture and Civilization.
6. Lemon, M. C. (2003). *Philosophy of history*. Routledge.
7. Marwick, A. (1989). *The new nature of history* (pp. 31–35). Macmillan.
8. Qadir, K. (1994). *Tarikh nigari: Nazriyat-o-irtiqa*. Lahore.

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Semester: 4th
Course Title: Introduction to Psychology
Course Code: ATH-504

Week	Topics
1	**1- Introduction to Psychology** A. Course Overview Importance of Psychology in Understanding Human Behavior
2 & 3	**2- The History and Scope of Psychology** A. Defining Psychology B. Roots of Psychology: Philosophical and Scientific Influences C. Major Schools of Thought in Psychology D. Contemporary Perspectives in Psychology Research in Psychology
4 & 5	**3- Biological Bases of Behavior** A. Structure and Function of the Nervous System B. Neural Transmission and Neurotransmitters C. Brain Plasticity and Neuroplasticity D. Endocrine System and Hormonal Influence on Behavior
6	**4- Sensation and Perception** A. Sensory Processes: Vision, Hearing, Taste, Smell, and Touch B. Perceptual Organization and Interpretation C. Gestalt Principles and Perceptual Illusions D. Influences on Perception: Culture, Experience, and Expectations
7	**5- States of Consciousness** A. Sleep and Dream B. Hypnosis and Meditation C. Drug Use
8	**6- Learning** A. Classical Conditioning B. Operant Conditioning C. Observational Learning D. Cognitive Factors in Learning
9	**7- Memory** A. Encoding, Storage, and Retrieval B. Sensory Memory, Short-Term Memory, and Long-Term Memory C. Forgetting and Memory Errors D. Improving Memory and Study Skills
10 & 11	**8- Cognition and Language** A. Thinking and Problem-Solving B. Decision Making and Judgment C. Language Development and Acquisition D. Language Structure and Processing

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12 & 13	**9- Motivation and Emotion** A. Theories of Motivation: Biological, Cognitive, and Social B. Basic Emotions and Theories of Emotion C. Stress and Coping Mechanisms D. Positive Psychology and Well-Being
14	**10- Developmental Psychology** A. Theories of Development: Psychoanalytic, Cognitive, and Socioemotional B. Prenatal and Infant Development C. Childhood and Adolescence: Cognitive and Social Development D. Adulthood and Aging: Cognitive Changes and Psychosocial Development
15	**11-Social Psychology** A. Social Influence: Conformity, Obedience, and Compliance B. Attitudes and Attitude Change C. Group Dynamics and Interpersonal Relations Prejudice, Discrimination, and Stereotypes

Recommended Books:

1. Feldman, R. S. (2017). *Essentials of understanding psychology* (9th ed.). McGraw-Hill Education.
2. Dewey, R. (2004). *Psychology: An introduction*. Allyn & Bacon.
3. Stangor, C. (2010). *Introduction to psychology*. Flat World Knowledge.
4. Ciccarelli, S. K., & White, J. N. (2015). *Psychology* (4th ed.). Pearson Education.
5. Goldstein, E. B. (2014). *Sensation and perception* (9th ed.). Cengage Learning.
6. Gray, P., & Bjorklund, D. F. (2018). *Psychology* (8th ed.). Worth Publishers.
7. Myers, D. G., & DeWall, C. N. (2019). *Psychology* (12th ed.). Worth Publishers.
8. OpenStax. (2020). *Psychology*. OpenStax, Rice University.
9. Zimbardo, P. G., Johnson, R. L., & McCann, V. (2017). *Psychology: Core concepts* (8th ed.). Pearson Education.

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Semester: 4th
Course Title: Introduction to Sociology
Course Code: ATH-505

Week	Topics
1	**Introduction to Sociology**: Definition, Nature, Scope, and Subject Matter; Society and Community
2	**Sociology as a Science**; Relationship of Sociology with Other Social Sciences; Historical Background and Development of Sociology; Sociological Imagination
3	**Basic Concepts**: Society, Community, Group, Association; Voluntary and Non-Voluntary Organizations; Formal and Informal Organizations
4	**Social Interaction**: Levels and Processes—Cooperation, Competition, Conflict, Accommodation, Assimilation, Acculturation, Diffusion
5	**Social Groups**: Definition and Functions; Types—Primary & Secondary Groups, In-groups & Out-groups, Reference Groups, Pressure Groups
6	**Culture**: Definition, Characteristics, and Types; Material and Non-Material Culture; Ideal and Real Culture
7	**Elements and Organization of Culture**: Beliefs, Values, Norms, Social Sanctions; Cultural Traits, Complexes, Patterns; Cultural Lag; Subcultures; Ethnocentrism and Cultural Relativism
8	**Socialization and Personality**: Personality Formation; Agencies of Socialization; Status and Role
9	**Deviance and Social Control**: Deviance and Its Types; Need for Social Control; Formal and Informal Methods and Agencies
10	**Collective Behavior**: Crowd, Mob, Public Opinion, Propaganda, Leadership
11	**Social Movements**: Definition, Characteristics, Causes, Types, and Theories
12	**Social Stratification**: Concepts and Approaches; Caste, Class, and Race
13	**Social and Cultural Change**: Definition, Dynamics, Factors
14	**Globalization and Society**: Impact of Globalization on Culture and Society; Resistance to Change
15	**Revision / Applied Sociological Issues**

Recommended Books:

1. Anderson, M. L., & Taylor, H. F. (2001). *Sociology: The essentials*. Wadsworth.
2. Brown, K. (2004). *Sociology*. Polity Press.
3. Brym, R., & Lie, J. (2022). *Sociology: Your compass for a new world* (7th ed.). Cengage Learning.
4. Giddens, A., Griffiths, D., & Sutton, P. W. (2020). *Sociology* (9th ed.). Polity Press.
5. Henslin, J. M. (2004). *Sociology: A down-to-earth approach*. Allyn & Bacon.
6. Keirns, N. J., Strayer, E., Griffiths, H., Cody-Rydzewski, S., Scaramuzzo, G., Sadler, T., … OpenStax College. (2013). *Introduction to sociology*. OpenStax, Rice University.
7. Magill, F. N. (2003). *International encyclopedia of sociology*. Fitzroy Dearborn Publishers.
8. Macionis, J. J. (2005). *Sociology* (10th ed.). Pearson Education.

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9. Macionis, J. J. (2006). *Sociology* (10th ed.). Prentice Hall.
10. Marsh, D., & Stoker, G. (2010). *Theory and methods in social research* (3rd ed.). Palgrave Macmillan.
11. Rao, C. S. (2014). *Sociology: Principles of sociology* (pp. 348–364). S. Chand.
12. Schwalbe, M. (2024). *Social order and everyday life* (6th ed.). Sage Publications.
13. Stolley, K. S. (2005). *The basics of sociology*. Greenwood Publishing Group.
14. Tischler, H. L. (2002). *Introduction to sociology* (7th ed.). Harcourt Press.
15. Van Tubergen, F. (2020). *Introduction to sociology*. Routledge.
16. Williams, J. E., & Best, D. L. (2021). *Gender roles and society: A global perspective* (3rd ed.). Routledge.



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Semester: 4th
Course Title: Introduction to Fine Arts / Visual Art
Course Code: ATH-506

Week	Topics
1	**Introduction to Fine Arts & Visual Arts**: Definition, scope, importance; Fine Arts vs. Applied Arts; Art as communication and expression
2	**Elements of Art**: Line, shape, form; Color, texture, space; Value and tone
3	**Principles of Design**: Balance, rhythm, harmony; Contrast, emphasis, unity; Proportion and scale
4	**Media & Techniques**: Drawing & sketching; Painting (watercolor, oil, acrylic); Sculpture & relief
5	**Introduction to Art History**: Prehistoric and ancient art; Egyptian, Mesopotamian, Greek art
6	**Medieval & Islamic Art**: Characteristics of Islamic art; Calligraphy, geometry, architecture
7	**Renaissance & Baroque Art**: Key artists and styles; Humanism and realism
8	**Modern Art Movements**: Impressionism, Expressionism; Cubism, Surrealism
9	**Contemporary Art**: Conceptual art; Installation and performance art
10	**Visual Arts in South Asia & Pakistan**: Mughal painting; Contemporary Pakistani artists
11	**Art Appreciation & Criticism**: Formal analysis; Contextual and interpretive approaches
12	**Art & Society**: Art, culture, and identity; Art as social commentary
13	**Museums, Galleries & Art Institutions**: Role of museums; Art exhibitions and curatorship
14	**Applied Visual Projects**: Studio work, sketching, basic exercises in drawing or painting
15	**Review and Consolidation**: Discussion of key concepts, revision of all topics, Q&A

Recommended Books:

1. Craig, A. M., Kagan, D., Graham, W. A., Ozment, S., & Turner, F. M. (2001). *The heritage of world civilizations*. Prentice Hall PTR.
2. Dorn, W. (2017). *The art of visual storytelling: Understanding the elements of visual communication*. Routledge.
3. Gombrich, E. H. (2020). *The story of art* (17th ed.). Phaidon Press.
4. Honour, H., & Fleming, J. (2021). *A world history of art* (8th ed.). Laurence King Publishing.
5. Lucie-Smith, E. (2018). *Art today* (4th ed.). Thames & Hudson.
6. Ocvirk, O. G., Stinson, R. E., Wigg, P. R., Bone, R., & Cayton, D. L. (2019). *Art fundamentals: Theory and practice* (13th ed.). McGraw-Hill Education.
7. Stokstad, M., & Cothren, M. W. (2021). *Art history* (6th ed.). Pearson.
8. Sayre, H. M. (2020). *A world of art* (9th ed.). Pearson.
9. Nochlin, L. (2016). *Women, art, and power: And other essays*. Harper & Row.
10. Feldman, E. B., & Feldman, R. S. (2018). *Visual art: An introduction to appreciation*. McGraw-Hill Education.

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Semester: 4th
Course Title: Advertising & Marketing Communication
Course Code: ATH-507

Week	Topics
1	**Introduction to Advertising & Marketing Communication**: Definitions, scope, and importance; Role of advertising in marketing
2	**Marketing Communication Mix**: Advertising, sales promotion, public relations, direct marketing, personal selling
3	**Consumer Behavior & Target Audience**: Understanding consumers; Segmentation, targeting, positioning
4	**Advertising Objectives & Strategy**: Types of objectives; Setting measurable goals; Strategic planning
5	**Creative Strategy in Advertising**: Message development; Creative approaches; Copywriting basics
6	**Media Planning & Selection**: Types of media; Media scheduling; Reach, frequency, and impact
7	**Advertising Campaigns**: Steps in campaign development; Case studies; Branding strategies
8	**Digital & Social Media Advertising**: Online platforms; Influencer marketing; Social media campaigns
9	**Print & Broadcast Advertising**: Newspapers, magazines, radio, TV; Effectiveness and limitations
10	**Outdoor & Alternative Advertising**: Billboards, transit ads, guerrilla marketing, event marketing
11	**Advertising Research & Measurement**: Market research; Measuring ad effectiveness; ROI
12	**Ethics & Legal Issues in Advertising**: Regulatory frameworks; Ethical considerations; Consumer protection
13	**Integrated Marketing Communication (IMC)**: Concept, tools, benefits; Case studies of successful IMC campaigns
14	**Trends in Advertising & Marketing Communication**: Current innovations, technology, and global trends
15	**Course Review & Practical Applications**: Recap of key concepts; Practical exercises in campaign planning

Recommended Books:

1. Belch, G. E., & Belch, M. A. (2021). *Advertising and promotion: An integrated marketing communications perspective* (12th ed.). McGraw-Hill Education.
2. Clow, K. E., & Baack, D. (2020). *Integrated advertising, promotion, and marketing communications* (9th ed.). Pearson.
3. Kotler, P., & Keller, K. L. (2022). *Marketing management* (16th ed.). Pearson.
4. Arens, W. F., Weigold, M. F., & Arens, C. (2019). *Contemporary advertising* (16th ed.). McGraw-Hill Education.

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5. Shimp, T. A., & Andrews, J. C. (2019). *Advertising, promotion, and other aspects of integrated marketing communications* (10th ed.). Cengage Learning.
6. Ogden, J. R., & Ogden, D. T. (2020). *Advertising & IMC: Principles and practice*. Routledge.

Additional Books:

1. Fill, C., & Turnbull, S. (2023). *Marketing communications* (9th ed.). Pearson.
2. Mishra, A., & Vijay, T. S. (2024). *Integrated advertising, promotion, and marketing: Communicating in a digital world*. Routledge.
3. Smith, P. R., & Zook, Z. (2024). *Marketing communications* (8th ed.). Kogan Page.
4. Adeola, O., Hinson, R. E., & Sakkthivel, A. M. (Eds.). (2022). *Marketing communications and brand development in emerging economies* (Vol. I). Springer.
5. Scott, D. M. (2024). *The new rules of marketing and PR* (9th ed.). Wiley



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Semester: 4th
Course Title: Gender Studies
Course Code: ATH-508

Week	Topics
1	**Introduction to Gender Studies**: Definitions of gender, sex, sexuality; Scope and importance of gender studies
2	**Key Concepts**: Patriarchy, masculinity, femininity, gender roles, intersectionality
3	**Theories in Gender Studies**: Feminist theory, Marxist feminist theory, queer theory, postcolonial feminism
4	**History of Feminist Movements**: First, second, and third waves; Global feminist movements
5	**Gender and Society**: Gender roles, socialization, family, and kinship patterns
6	**Gender and Education**: Access, literacy, curriculum, gendered experiences in education
7	**Gender and Work**: Labor market participation, wage gaps, informal work, unpaid labor
8	**Gender and Health**: Reproductive health, mental health, access to healthcare, gendered health disparities
9	**Gender, Law, and Policy**: Legal frameworks, women's rights, gender equity policies, international conventions (CEDAW, SDGs)
10	**Media and Gender Representation**: Gender in advertising, film, social media, stereotypes, body politics
11	**Violence and Gender**: Domestic violence, sexual harassment, trafficking, conflict and war
12	**Masculinity Studies**: Hegemonic masculinity, male privilege, changing gender norms
13	**Gender and Development**: Gender mainstreaming, empowerment, participation, global development policies
14	**Emerging Issues in Gender Studies**: LGBTQ+ rights, transgender issues, intersectional identities
15	**Review and Reflection**: Consolidation of concepts, case studies, discussion on contemporary gender issues

Recommended Books:

1. Butler, J. (2006). *Gender trouble: Feminism and the subversion of identity* (10th anniversary ed.). Routledge.
2. Connell, R. W. (2009). *Gender: In world perspective* (2nd ed.). Polity Press.
3. Hooks, B. (2000). *Feminism is for everybody: Passionate politics*. South End Press.
4. Risman, B. J. (2020). *Gender: Theory and research* (3rd ed.). Routledge.
5. Tong, R. (2018). *Feminist thought: A more comprehensive introduction* (5th ed.). Routledge.
6. Lorber, J. (2010). *Gender inequality: Feminist theories and politics* (4th ed.). Oxford University Press.
7. Ferree, M. M., Lorber, J., & Hess, B. B. (2019). *Revisioning gender* (2nd ed.). Routledge.

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****LIST OF ALLIED/ INTERDISCIPLINARY COURSES

(3 Credit Hours)

Course Codes	Names of Courses	Credit Hours
ALD-601	Introduction to Business	3 – Credit Hours
ALD-602	Introduction to Finance	3 – Credit Hours
ALD-603	Introduction to Geography	3 – Credit Hours
ALD-604	Data Science & Data Base Management	3 – Credit Hours
ALD-605	Programing for Economists (Python/ R)	3 – Credit Hours
ALD-606	Statistical Software (SPSS, Stata, Eviews)	3 – Credit Hours
ALD-607	Principles of Marketing	3 – Credit Hours
ALD-608	Introduction to Financial Technology	3 – Credit Hours
ALD-609	Sustainable Development Studies	3 – Credit Hours
ALD-610	Fundamentals of Blue Economy	3 – Credit Hours
Mandatory Allied/Interdisciplinary Course		
ALD-611	Artificial Intelligence for Economists	3 – Credit Hours

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Semester: 5/6//7/8
Course Title: Introduction to Business
Course Code: ALD-601

Week	Topics
1	**The Dynamics of Business and Economics** — Nature and purpose of business; Economic systems; Supply and demand; Business and technology
2	**Business Ethics and Social Responsibility** — Ethical decision-making; Corporate social responsibility; Sustainability and stakeholder interests
3	**Business in a Borderless World** — Globalization; International trade; Cultural and legal environments of global business
4	**Options for Organizing Business** — Forms of business ownership (sole proprietorship, partnership, corporations); Advantages and disadvantages
5	**Small Business, Entrepreneurship, and Franchising** — Entrepreneurial mindset; Business planning; Franchising models
6	**The Nature of Management** — Management roles and functions; Planning, organizing, leading, controlling; Decision-making
7	**Organization, Teamwork, and Communication** — Organizational structure; Teams and collaboration; Business communication processes
8	**Managing Operations and Supply Chains** — Operations strategy; Supply chain management; Quality control and productivity
9	**Motivating the Workforce** — Motivation theories; Employee engagement; Rewards and performance
10	**Managing Human Resources** — Recruitment, selection, training; Performance appraisal; Labor relations
11	**Customer-Driven Marketing** — Marketing concepts; Consumer behavior; Market segmentation and targeting
12	**Dimensions of Marketing Strategy** — Product and brand strategy; Pricing; Distribution; Promotion
13	**Digital Marketing and Social Media** — Digital marketing trends; Social media strategy; Data analytics in marketing
14	**Accounting and Financial Statements** — Purpose of accounting; Balance sheet; Income statement; Cash flow analysis
15	**Money, Financial Systems & Financial Management** — Money and banking; Financial markets; Business finance; Investment and risk management

Recommended Books:

1. Ferrell, L., Ferrell, O. C., & Hirt, G. A. (2023). *Business foundations: A changing world* (13th ed.). McGraw-Hill.
2. Griffin, R. W., & Ebert, R. J. (2021). *Business* (13th ed.). Pearson.
3. Kreitner, R., & Kinicki, A. (2022). *Organizational behavior* (12th ed.). McGraw-Hill Education.
4. Nickels, W. G., McHugh, J. M., & McHugh, S. M. (2020). *Understanding business* (12th ed.). McGraw-Hill Education.

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5. Rothaermel, F. T. (2024). *Strategic management* (5th ed.). McGraw-Hill Education.
6. Daft, R. L. (2020). *Management* (14th ed.). Cengage Learning.
7. Kotler, P., & Keller, K. L. (2022). *Marketing management* (16th ed.). Pearson.
8. Dess, G. G., Lumpkin, G. T., & Eisner, A. B. (2020). *Strategic management: Creating competitive advantages* (9th ed.). McGraw-Hill Education.
9. Bateman, T. S., & Snell, S. A. (2019). *Management: Leading & collaborating in a competitive world* (14th ed.). McGraw-Hill Education.
10. Laudon, K. C., & Bitta, J. P. (2021). *Management information systems: Managing the digital firm* (17th ed.). Pearson.



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Semester: 5/6//7/8
Course Title: Introduction to Finance
Course Code: ALD-602

Week	Topics
1	**The Financial Environment** – What is finance; Why study finance; Six principles of finance; Financial markets overview.
2	**Money and the Monetary System** – Functions of money; Money supply; Monetary system structure; Monetary policy basics.
3	**Banks and Other Financial Institutions** – Types and roles of financial institutions; Banking systems; Regulation and international banking.
4	**Federal Reserve System** – Structure and functions of the Fed; Monetary policy tools; Central banking globally.
5	**Policy Makers and the Money Supply** – Government policy impacts; Money supply control; Policy makers' roles.
6	**International Finance and Trade** – Exchange rates; International monetary systems; Trade financing.
7	**Savings and the Investment Process** – Savings behavior; Capital formation; Role of saving in finance.
8	**Interest Rates** – Supply and demand for loanable funds; Components of market interest rates; Term structure of rates.
9	**Time Value of Money** – Present value and future value; Annuities and perpetuities; Applications in valuation.
10	**Bonds and Stocks: Characteristics and Valuations** – Features of bonds and equities; Pricing; Yield and returns.
11	**Securities and Markets** – Primary and secondary markets; Market structure and trading; Role of financial intermediaries.
12	**Financial Return and Risk Concepts** – Measuring returns; Risk concepts; Diversification and basic portfolio ideas.
13	**Business Organization and Financial Data** – Firm types; Financial statements overview; Introduction to financial analysis.
14	**Financial Analysis, Long-Term Planning & Working Capital** – Ratio analysis; Budgeting and planning; Working capital basics.
15	**Short-Term Financing, Capital Budgeting & Cost of Capital** – Short-term funds; NPV/IRR basics; Cost of capital and capital structure.

Recommended Books:

1. Melicher, R. W., & Norton, E. A. (2021). *Introduction to finance: Markets, investments, and financial management* (17th ed.). Wiley.
2. Fabozzi, F. J., Fabozzi, F. A., & Drake, P. P. (2021). *Introduction to finance*. World Scientific Publishing.
3. Backwell, A. (2023). *An intuitive introduction to finance and derivatives: Concepts, terminology and models*. Springer.



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4. Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2022). *Fundamentals of corporate finance* (13th ed.). McGraw-Hill Education.
5. Brigham, E. F., & Houston, J. F. (2023). *Fundamentals of financial management* (16th ed.). Cengage Learning.
6. Gitman, L. J., & Zutter, C. J. (2021). *Principles of managerial finance* (15th ed.). Pearson.
7. Van Horne, J. C., & Wachowicz, J. M. (2020). *Fundamentals of financial management* (14th ed.). Pearson.



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Semester: 5/6//7/8
Course Title: Introduction to Geography
Course Code: ALD-603

Week	Topics
1	**Introduction to Geography** – Meaning, scope, and branches of geography; Importance of spatial thinking; Maps and scale
2	**Tools of Geography** – Maps, projections, GIS basics, remote sensing, GPS; Types of maps and their uses
3	**Earth and Physical Systems** – Structure of the Earth; Lithosphere, hydrosphere, atmosphere, biosphere
4	**Weather and Climate** – Elements of weather; Climate classification; Global climate patterns; Climate change basics
5	**Landforms and Geomorphology** – Plate tectonics; Mountains, rivers, deserts; Natural hazards (earthquakes, volcanoes)
6	**Water Resources** – Oceans, rivers, groundwater; Water cycle; Water scarcity and management
7	**Population Geography** – Population distribution; Growth trends; Migration; Demographic transition model
8	**Cultural Geography** – Language, religion, ethnicity; Cultural regions; Globalization and cultural change
9	**Urban Geography** – Urbanization; City structure models; Urban problems; Smart cities
10	**Economic Geography** – Agriculture, industry, trade; Location theories; Global economic patterns
11	**Political Geography** – Nation-states; Boundaries; Geopolitics; International organizations
12	**Human–Environment Interaction** – Resource use; Environmental degradation; Sustainability concepts
13	**Regional Geography** – Comparative study of selected world regions
14	**Contemporary Geographic Issues** – Climate change; Migration crises; Urban expansion; Global inequality
15	**Applied Geography & Project Presentations** – Case studies; Map-based analysis; Student presentations

Recommended Books:

1. Rubenstein, J. M. (2020). *The cultural landscape: An introduction to human geography* (13th ed.). Pearson.
2. De Blij, H., Murphy, A., & Fouberg, E. (2019). *Human geography: People, place, and culture* (12th ed.). Wiley.
3. Strahler, A. H., & Strahler, A. N. (2016). *Introducing physical geography* (6th ed.). Wiley.
4. Knox, P., & Marston, S. (2020). *Human geography: Places and regions in global context* (8th ed.). Pearson.

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Semester: 5/6//7/8
Course Title: Data Science & Data Base Management
Course Code: ALD-604

Week	Topics
1	**Introduction to Data Science**: Definition, scope, importance; Data-driven decision making; Data Science lifecycle; Applications in business, economics, and social sciences
2	**Types of Data & Data Sources**: Structured, semi-structured, unstructured data; Qualitative vs quantitative data; Primary & secondary data; Big Data and 3Vs (Volume, Variety, Velocity)
3	**Data Collection & Data Cleaning**: Data acquisition methods; Handling missing values; Outlier detection; Data transformation; Data quality issues
4	**Data Visualization**: Principles of visualization; Bar charts, line graphs, histograms, pie charts, scatter plots; Dashboard concepts; Visualization using Excel/Python
5	**Exploratory Data Analysis (EDA)**: Descriptive statistics; Measures of dispersion; Correlation analysis; Cross-tabulation; Interpretation of outputs
6	**Statistical Foundations**: Probability basics; Random variables; Sampling methods; Introduction to hypothesis testing and p-values
7	**Introduction to Machine Learning Concepts**: AI vs ML; Supervised learning; Unsupervised learning; Regression basics; Classification basics
8	**Mid-Term Review & Assessment**
9	**Introduction to Databases & DBMS**: Database concepts; File system vs DBMS; Components of DBMS; Types of DBMS
10	**Relational Database Model**: Tables, primary & foreign keys; Integrity constraints; ER diagrams; Relationships (1:1, 1:M, M:N)
11	**Database Design & Normalization**: Functional dependency; Database anomalies; First, Second, and Third Normal Forms (1NF, 2NF, 3NF); Schema design
12	**SQL – I**: Introduction to SQL; DDL & DML commands; SELECT statement; WHERE clause; ORDER BY; GROUP BY
13	**SQL – II**: Joins (Inner, Left, Right); Aggregate functions (SUM, AVG, COUNT); Subqueries; Views
14	**Database Administration & Security**: Backup and recovery; Access control; Data privacy and ethics; Introduction to cloud databases
15	**Practical Applications & Project Presentations**: Data cleaning project; Database design mini-project; Basic predictive model demonstration; Final review

Recommended Books:

1. Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking*. O'Reilly Media.
2. Han, J., Pei, J., & Kamber, M. (2011). *Data mining: Concepts and techniques* (3rd ed.). Morgan Kaufmann.
3. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2019). *Database system concepts* (7th ed.). McGraw-Hill Education.
4. Elmasri, R., & Navathe, S. B. (2016). *Fundamentals of database systems* (7th ed.). Pearson.



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5. Géron, A. (2019). *Hands-on machine learning with Scikit-Learn, Keras, and TensorFlow* (2nd ed.). O'Reilly Media.

Additional Readings:

1. Dinov, I. D. (2023). *Data science and predictive analytics: Biomedical and health applications using R* (2nd ed.). Springer.
2. Idrissi, A. (Ed.). (2024). *Modern artificial intelligence and data science 2024: Tools, techniques and systems*. Springer.
3. Narayanan, A., & Kapoor, S. (2024). *AI snake oil: What artificial intelligence can do, what it can't, and how to tell the difference*. Princeton University Press.
4. Baley, I., & Veldkamp, L. (2025). *The data economy: Tools and applications*. Princeton University Press.
5. Mendoza-Cortés Group. (2025). *Machine learning and quantum computing guide for humans*. (Hardcover forthcoming).



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Semester: 5/6//7/8
Course Title: Programing for Economists (Python/ R)
Course Code: ALD-605

Week	Topics
1	**Python: Introduction & Environment Setup** – Python overview; Installing Anaconda & Jupyter Notebook; Writing and running scripts; Programming workflow for economic data
2	**Python: Variables & Data Types** – Numeric, string, boolean; Lists, tuples, dictionaries; Arithmetic and logical operations; Type conversion
3	**Python: Control Structures** – if-else statements; for and while loops; Writing reusable scripts
4	**Python: Functions & Modular Programming** – Defining functions; Arguments and return values; Using libraries
5	**Python: Data Structures & Manipulation** – Data frames, lists of lists; Indexing, slicing, subsetting; Using pandas for data manipulation
6	**Python: Data Import & Export** – Reading/writing CSV, Excel, text files; Managing directories; Handling large datasets
7	**Python: Visualization** – Line charts, bar charts, histograms, scatter plots; Plot customization with matplotlib & seaborn
8	**Python: Applied Project & Automation** – Loops for repetitive tasks; Automating workflows; Analysis of an economic dataset; Presentation of results
9	**R: Introduction & Environment Setup** – R overview; Installing RStudio; Writing and running scripts
10	**R: Variables & Data Types** – Numeric, string, boolean; Vectors, matrices, lists; Type conversion
11	**R: Control Structures** – if-else statements; for and while loops; Writing reusable scripts
12	**R: Functions & Modular Programming** – Defining functions; Arguments and return values; Using R packages
13	**R: Data Manipulation** – Data frames; dplyr package for filtering, arranging, summarizing; Merging and aggregating datasets
14	**R: Visualization** – Basic plots; ggplot2; Customization and multi-panel plots; Exporting graphs
15	**R: Applied Project** – Handling real economic datasets; Data cleaning, visualization, and automation; Presentation of results

Recommended Books:

1. McKinney, W. (2022). *Python for data analysis: Data wrangling with pandas, NumPy, and Jupyter* (3rd ed.). O'Reilly Media.
2. VanderPlas, J. (2016). *Python data science handbook*. O'Reilly Media.
3. Wickham, H., & Grolemund, G. (2017). *R for data science: Import, tidy, transform, visualize, and model data*. O'Reilly Media.

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4. Dinov, I. D. (2023). *Data science and predictive analytics: Biomedical and health applications using R* (2nd ed.). Springer.

5. Idrissi, A. (Ed.). (2024). *Modern artificial intelligence and data science 2024: Tools, techniques and systems*. Springer.

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Semester: 5/6//7/8
Course Title: Statistical Software (SPSS, Stata, Eviews)
Course Code: ALD-606

Week	Topics
1	**Introduction & Overview of Statistical Software** – Importance of software in research; Overview of SPSS, Stata, EViews; Interface, windows, menus, and commands
2	**SPSS: Data Handling** – Data entry; Importing datasets (CSV, Excel); Variable types and labels; Sorting, filtering, and recoding
3	**SPSS: Descriptive Statistics & Visualization** – Frequency tables, cross-tabulations; Measures of central tendency & dispersion; Bar charts, histograms, scatter plots
4	**SPSS: Basic Analysis & Output Interpretation** – Correlation; t-tests; ANOVA; Exporting tables and charts
5	**Stata: Data Management** – Opening datasets; Data types, variable labels; Generating and transforming variables; Sorting and merging datasets
6	**Stata: Descriptive Statistics & Graphs** – Summary statistics; Frequencies; Tables; Histograms, scatterplots, boxplots; Saving and exporting outputs
7	**Stata: Regression & Basic Analysis** – Simple and multiple regression; Interpreting coefficients, R^2, and p-values; Model diagnostics
8	**EViews: Introduction & Data Handling** – Overview; Creating workfiles; Importing datasets; Series creation; Data transformation
9	**EViews: Descriptive Analysis & Graphs** – Summary statistics; Frequency distributions; Line plots, bar charts, histograms; Exporting graphs
10	**EViews: Time Series Analysis Basics** – Trend analysis; Moving averages; Index numbers; Plotting time series data
11	**SPSS, Stata, EViews: Comparative Analysis** – Running similar analyses in all three software; Comparing output, syntax, and workflow
12	**Data Cleaning & Preparation Across Software** – Handling missing values; Outlier detection; Recoding variables; Consistency checks
13	**Practical Exercises: Regression Analysis** – Applying simple and multiple regression using SPSS, Stata, and EViews; Interpreting results
14	**Practical Exercises: Data Visualization** – Creating charts and graphs for presentation; Exporting visuals for reports
15	**Applied Project & Presentation** – Analysis of a real dataset; Cleaning, visualization, and interpretation in all three software; Project report and presentation

Recommended Books:

1. Field, A. (2024). *Discovering statistics using IBM SPSS statistics* (6th ed.). Sage Publications Ltd.
2. Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). McGraw-Hill Education.
3. Laerd Statistics. (2015). *Using IBM SPSS Statistics: An interactive hands-on approach* (3rd ed.). Sage Publications.
4. Acock, A. C. (2018). *A gentle introduction to Stata* (6th ed.). Stata Press.



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5. Pevalin, D. J., & Robson, K. (2019). *The Stata survival manual: A step by step guide to data analysis using Stata* (4th ed.). McGraw-Hill Education.
6. Baum, C. F. (2013). *An introduction to Stata programming* (2nd ed.). Stata Press.
7. Aljandali, A., & Tatahi, M. (2018). *Economic and financial modelling with EViews: A guide for students and professionals*. Springer.
8. Gonzalez-Rivera, G. (2016). *Forecasting for economics and business* (1st ed., with EViews examples). Routledge.
9. Hill, R. C., Griffiths, W. E., & Lim, G. C. (2011). *Using EViews for principles of econometrics* (4th ed.). Wiley.



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Semester: 5/6//7/8
Course Title: Principles of Marketing
Course Code: ALD-607

Week	Topics
1	**Introduction to Marketing** – Definition, scope, and importance; Marketing vs. selling; Evolution of marketing concepts
2	**Marketing Environment** – Micro and macro environment; Competitive analysis; PESTEL framework
3	**Consumer Behavior** – Consumer decision-making process; Psychological, cultural, and social factors influencing buying behavior
4	**Market Segmentation, Targeting & Positioning (STP)** – Bases for segmentation; Selecting target markets; Positioning strategies
5	**Product Management** – Product classification; Product life cycle; Branding; Packaging; New product development
6	**Services Marketing** – Characteristics of services; Service marketing mix; Managing service quality
7	**Pricing Strategies** – Factors affecting pricing; Pricing objectives; Pricing methods and strategies
8	**Distribution Channels** – Channel design; Types of intermediaries; Logistics and supply chain management
9	**Retailing and Wholesaling** – Retail formats; Wholesaling functions; Modern retail trends
10	**Promotion and Integrated Marketing Communications (IMC)** – Advertising, personal selling, sales promotion, public relations; IMC planning
11	**Digital Marketing** – Social media marketing; Search engine marketing; Online consumer behavior
12	**Marketing Research** – Process; Data collection methods; Analysis and interpretation of marketing data
13	**Global Marketing** – International marketing environment; Strategies for global markets; Cultural adaptation
14	**Ethics and Social Responsibility in Marketing** – Ethical issues; Sustainability; Consumer rights
15	**Marketing Planning and Strategy** – Developing a marketing plan; Case studies and practical applications

Recommended Books:

1. Kotler, P., & Keller, K. L. (2022). *Marketing management* (16th ed.). Pearson.
2. Ferrell, O. C., & Hartline, M. (2021). *Marketing strategy* (8th ed.). Cengage Learning.
3. Lamb, C. W., Hair, J. F., & McDaniel, C. (2020). *MKTG* (13th ed.). Cengage Learning.
4. Armstrong, G., & Kotler, P. (2020). *Principles of marketing* (18th ed.). Pearson.
5. Solomon, M., Marshall, G., & Stuart, E. (2019). *Marketing: Real people, real choices* (9th ed.). Pearson.



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Semester: 5/6//7/8
Course Title: Introduction to Financial Technology
Course Code: ALD-608

Week	Topics
1	**Introduction to FinTech** – Meaning and scope; Evolution of financial services; Traditional vs. digital finance
2	**FinTech Ecosystem** – Banks, startups, big tech firms; Venture capital; Digital financial infrastructure
3	**Digital Payment Systems** – Mobile payments; E-wallets; Payment gateways; Online banking systems
4	**Blockchain Technology** – Distributed ledger technology; Smart contracts; Applications in finance
5	**Cryptocurrencies** – Bitcoin and altcoins; Crypto exchanges; Risks and volatility
6	**Digital Lending & Crowdfunding** – Peer-to-peer lending; Crowdfunding platforms; Credit scoring models
7	**Robo-Advisory & Algorithmic Trading** – Automated portfolio management; AI-driven trading systems
8	**Artificial Intelligence in FinTech** – Machine learning applications; Fraud detection; Predictive analytics
9	**Big Data & Financial Analytics** – Data-driven decision-making; Customer analytics; Risk modeling
10	**InsurTech & RegTech** – Insurance technology innovations; Regulatory technology; Compliance automation
11	**Cybersecurity in Financial Systems** – Digital fraud; Data privacy; Risk mitigation strategies
12	**Open Banking & APIs** – Open finance models; API integration; Financial innovation frameworks
13	**Central Bank Digital Currencies (CBDCs)** – Digital currencies issued by central banks; Monetary policy implications
14	**Ethical and Regulatory Issues in FinTech** – Consumer protection; Financial inclusion; Legal challenges
15	**Future of FinTech & Project Presentations** – Emerging trends; Global case studies; Student presentations

Recommended Books:

1. Chishti, S., & Barberis, J. (2016). *The fintech book: The financial technology handbook for investors, entrepreneurs and visionaries*. Wiley.
2. Arner, D. W., Barberis, J. N., & Buckley, R. P. (2017). *FinTech and regtech: Impact on regulators and banks*. Wiley.
3. Lee, I., & Shin, Y. J. (2018). FinTech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46.



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4. Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and cryptocurrency technologies*. Princeton University Press.
5. Gomber, P., Koch, J. A., & Siering, M. (2017). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics*, 87(5), 537–580.



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Semester: 5/6//7/8
Course Title: Sustainable Development Studies
Course Code: ALD-609

Week	Topics
1	**Introduction to Sustainable Development** – Definition; history; Brundtland Report; three pillars of sustainability
2	**Global Development Challenges** – Population growth; poverty and inequality; resource constraints
3	**Sustainable Development Goals (SDGs)** – Overview of 17 SDGs; implementation strategies
4	**Environmental Dimension** – Climate change; biodiversity; ecosystems; deforestation and pollution
5	**Economic Dimension** – Inclusive growth; green economy; poverty reduction; economic equity
6	**Social Dimension** – Social inclusion; gender equality; education and health; human development indices
7	**Sustainable Consumption & Production** – Circular economy; waste management; eco-labeling; sustainable lifestyles
8	**Energy and Sustainability** – Energy consumption; renewable energy; energy efficiency; sustainable energy policies
9	**Water and Food Security** – Water management; global food systems; sustainable agriculture; water-energy-food nexus
10	**Urban Sustainability** – Urbanization; smart cities; sustainable transport; housing and infrastructure
11	**Governance and Policy** – Role of governments and institutions; policy instruments; multi-level governance
12	**Business and Sustainability** – Corporate Social Responsibility (CSR); ESG criteria; sustainable business strategies
13	**Measurement & Indicators** – HDI; EPI; sustainability reporting; monitoring SDG progress
14	**Case Studies** – National and regional case studies; best practices; lessons learned
15	**Challenges and Applied Project** – Trade-offs; financing gaps; group project presentations

Recommended Books:

1. Sachs, J. D. (2015). *The age of sustainable development*. Columbia University Press.
2. World Commission on Environment and Development. (1987). *Our common future*. Oxford University Press.
3. Lele, S. (1991). *Sustainable development: A critical review*. *World Development, 19*(6), 607-621.
4. Kates, R. W., Parris, T. M., & Leiserowitz, A. A. (2005). "What is sustainable development? Goals, indicators, values, and practice." *Environment: Science and Policy for Sustainable Development, 47*(3), 8-21.
5. Meadows, D. H., Meadows, D. L., & Randers, J. (2004). *Limits to growth: The 30-year update*. Chelsea Green Publishing.
6. Bosselmann, K. (2017). *The principle of sustainability*. Routledge.



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7. Hopwood, B., Mellor, M., & O'Brien, G. (2005). "Sustainable development: Mapping different approaches." *Sustainable Development, 13*(1), 38-52.
8. Barbier, E. B. (2019). *Sustainability and development*. Cambridge University Press.
9. Munasinghe, M., & Swart, R. (Eds.). (2005). *Sustainable development dimensions: Environment, equity, and economics*. Cambridge University Press.
10. Allen, C., & Clouth, S. (2012). *Indicators of sustainable development: Guidelines and methodologies*. United Nations Publications.



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Semester: 5/6//7/8
Course Title: Fundamentals of Blue Economy
Course Code: ALD-610

Week	Topics
1	**Introduction to Blue Economy**- Definition, history, and importance- Global and regional perspectives
2	**Principles of Blue Economy**- Sustainable development and economic growth- Integration of environmental, social, and economic dimensions
3	**Ocean and Coastal Resources**- Types of marine resources: biological, mineral, and energy- Marine ecosystem services
4	**Fisheries and Aquaculture Economics**- Economic contribution of fisheries- Sustainable fisheries management
5	**Maritime Transport and Shipping**- Shipping economics and logistics- Port management and international trade
6	**Marine Renewable Energy**- Offshore wind, wave, and tidal energy- Economic and environmental considerations
7	**Marine Biotechnology and Innovation**- Potential of marine biotechnology- Policy and business models
8	**Mid-Term Review and Assessment**
9	**Coastal Tourism and Recreation**- Economic significance- Sustainable tourism models
10	**Marine Pollution and Environmental Challenges**- Pollution types and sources- Impact on economy and ecosystems
11	**Climate Change and Ocean Governance**- Sea-level rise, ocean acidification- International conventions and agreements
12	**Policy, Regulation, and Institutional Framework**- National policies for blue economy- Role of international organizations
13	**Blue Economy in Developing Countries**- Case studies and best practices- Opportunities and challenges
14	**Economic Modeling and Analysis in Blue Economy**- Cost-benefit analysis- Valuation of marine ecosystem services
15	**Applications and Emerging Trends in Blue Economy**- Future opportunities in marine technology and innovation- Sustainable investment and global blue economy outlook

Recommended Books:

1. Sumaila, U. R., Cheung, W. W. L., Lam, V. W. Y., & Pauly, D. (2016). *The economics of the oceans and fisheries: Sustainable use of marine resources*. Oxford University Press.
2. World Bank. (2017). *The potential of the blue economy: Increasing long-term benefits of the sustainable use of marine resources*. Washington, DC: World Bank.
3. United Nations Environment Programme (UNEP). (2019). *Global Environment Outlook: Marine and Coastal Resources*.



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4. Grafton, R. Q., Hilborn, R., Squires, D., Tait, M., & Wizlliams, M. (Eds.). (2010). *Handbook of marine fisheries conservation and management*. Oxford University Press.
5. Hoegh-Guldberg, O., & Bruno, J. F. (2010). *The impact of climate change on the world's marine ecosystems*. Princeton University Press.
6. Khan, A., & Vanasselt, W. (2018). *Blue Economy: Economic development, marine resources, and sustainability*. Routledge.
7. Pauly, D., & Zeller, D. (2016). *Catch reconstructions reveal that global marine fisheries catches are higher than reported and declining*. Springer.
8. OECD. (2016). *The Ocean Economy in 2030*. OECD Publishing.

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Semester: 8
Course Title: Artificial Intelligence for Economists
Course Code: ALD-611

Weeks	Topics
1	**Introduction to Artificial Intelligence (AI)** • Meaning and Definition of AI • Evolution and History of AI • Importance of AI in Modern Economy • AI and Digital Transformation
2	**AI, Machine Learning and Deep Learning** • Difference between AI, ML and Deep Learning • Narrow AI vs General AI • Applications of AI in Economics, Finance and Governance
3	**Data in Economics and AI** • Types of Data: Cross-section, Time Series, Panel • Structured vs Unstructured Data • Big Data and its Economic Importance
4	**Data Preparation and Tools** • Data Cleaning and Handling Missing Values • Data Visualization Techniques • Introduction to Python/R Interface • Basic Commands for Economic Data Analysis
5	**Basics of Machine Learning** • Supervised Learning • Unsupervised Learning • Training and Testing Data • Concept of Algorithms
6	**Regression and Model Evaluation** • Traditional Regression vs ML Regression • Linear Regression in ML • Model Evaluation: R^2, MSE, RMSE • Concept of Prediction
7	**Classification Techniques** • Logistic Regression • Decision Trees • Confusion Matrix • Accuracy, Precision and Recall
8	**Clustering and Model Issues** • K-means Clustering • Applications of Clustering in Economics • Overfitting and Underfitting • Bias-Variance Tradeoff

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9	**AI in Finance** • Credit Scoring Models • Fraud Detection Systems • Risk Assessment • Algorithmic Trading
10	**AI in Development Economics** • Poverty Mapping using Data • Predicting Food Insecurity • Climate and Environmental Modeling • AI for Sustainable Development
11	**AI in Public Policy and Governance** • Policy Simulation Models • Smart Governance Systems • Digital Tax Administration • AI in Public Service Delivery
12	**AI and Labor Market** • Automation and Employment • Skill-Biased Technological Change • Productivity Effects • Future of Work
13	**Ethics and Regulation of AI** • Bias and Fairness in AI • Data Privacy and Protection • Accountability and Transparency • AI Governance Frameworks
14	**Generative AI for Economists** • AI in Research and Literature Review • AI for Report Writing • AI for Data Visualization • Limitations of Generative AI
15	**Responsible Use and Policy Challenges** • Ethical Use in Academic Work • Regulatory Challenges • AI and Economic Inequality • Global AI Trends

Recommended Books:

1. Mitchell, M. (2019). *Artificial intelligence: A guide for thinking humans*. Farrar, Straus and Giroux.
2. de Prado, M. L. (2020). *Machine learning for asset managers*. Cambridge University Press.
3. McKinney, W. (2018). *Python for data analysis: Data wrangling with pandas, NumPy, and IPython* (2nd ed.). O'Reilly Media.
4. Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.



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5. Aghion, P., Boulanger, J., & Cohen, E. (2022). *Artificial intelligence and economic growth: Skynet in the market*. MIT Press.
6. Sabherwal, R. (2021). *Big data and machine learning in economics*. Routledge.

Additional Readings:

1. Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach (4th ed.).* Pearson.
2. Hastie, T., Tibshirani, R., & Friedman, J. (2009). *The elements of statistical learning: Data mining, inference, and prediction (2nd ed.).* Springer.
3. Murphy, K. P. (2022). *Machine learning: A probabilistic perspective (2nd ed.).* MIT Press.
4. Varian, H. R. (2014). *Big data: New tricks for econometrics.* Journal of Economic Perspectives.
5. Bishop, C. M. (2006). *Pattern recognition and machine learning.* Springer.
6. Barber, D. (2012). *Bayesian reasoning and machine learning.* Cambridge University Press.
7. Aggarwal, C. C. (2018). *Machine learning for finance.* Springer.
8. Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking.* O'Reilly Media.
9. Chakraborty, C., & Joseph, A. (2017). *Machine learning in finance: From theory to practice.* Wiley

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