UNIVERSITY OF SARGODHA
OFFICE OF THE REGISTRAR
(ACAD BRANCH)

NOTIFICATION

On the recommendations of Academic Council made in its 19th (4/2023) meeting held on 13.09.2023, the Syndicate in its 64th (4/2023) meeting held on 03.11.2023 approved the revised curriculum of BS Geography (5th Semester Intake) for implementation w.e..f. **Fall 2025** (Annex-'A').

(WAQAR AHMAD)
Additional Registrar (General)

No. SU/Acad/25/1147

Dated: 24.10.2025

Distribution:

- Chairman Department of Earth Sciences
- Controller of Examinations
- Director Academics

C.C:

- Dean, Faculty of Sciences
- Director, QEC
- Secretary to the Vice-Chancellor
- PA to Registrar
- Notification File

1. **Title of Degree Program: BS in Geography (5th Semester Intake)**

2. **Program Learning Objectives:**

Geography is the study of earth, its structure, features, inhabitants and man environment interaction. The BS Geography programme helps students to study and investigate earth and related phenomena. After completion of their degree, students will be able to understand the recent perspectives of Geography including man environment relationship, spatial variations resulting from physical and human activities and relationship of Geography with other disciplines of allied sciences. Students will be able to gain current knowledge and practical skills through theory, practical and field excursions.

3. **Program Structure:**

Duration		Minimum 2-Years (4-Semesters), Maximum 3-Years (6-Semesters)
Eligibility:	Candidates having Associate Degree in Geography (Annual/Semester)	At least 45% marks or 2.5 CGPA out of 4.
	Candidates having /B.A/B.Sc/ADP (Annual) in intradisciplinary field	At least 45% marks or 2.5 CGPA out of 4. Candidates will be required to qualify 5 courses (15 cr. hrs) of deficiency courses to complete degree.

4. **List of Deficiency Courses**

Sr. no.	Category	Course Code	Course Title	Credit Hours
01	Deficiency 1	GEOG-5102	Physical Geography	3(3-0)
02	Deficiency 2	GEOG-5103	Human Geography	3(3-0)
03	Deficiency 3	GEOG-5104	Map Work	3(2-1)
04	Deficiency 4	GEOG-5109	Climatology	3(3-0)
05	Deficiency 5	GEOG-5111	Quantitative Methods In Geography	3(3-0)
Total Credit hours				**15(14-1)**

5. **List of Major Courses**

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Major-1	GEOG-6113	Geographical Information System	3(2-1)	Nil
Major-02	GEOG-6114	Oceanography	3(3-0)	Nil
Major-03	GEOG-6115	Remote Sensing	3(2-1)	Nil
Major-04	GEOG-6116	Research Methods	3(3-0)	Nil
Major-05	GEOG-6117	Population Geography	3(3-0)	Nil
Major-06	GEOG-6118	Environmental Geography	3(3-0)	Nil
Major-07	GEOG-6170	South Asia	3(3-0)	Nil
Major-08	GEOG-6119	Urban Geography	3(3-0)	Nil
Major-09	GEOG-6120	Digital Image Processing	3(2-1)	Nil
Major-10	GEOG-61xx	Elective Course-I**	3(3-0)	Nil
Major-11	GEOG-61xx	Elective Course-II**	3(3-0)	Nil
Major-12	GEOG-6121	Geography of Pakistan	3(3-0)	Nil
Major-13	GEOG-61xx	Elective Course-III**	3(3-0)	Nil
Major-14	GEOG-61xx	Elective Course-IV**	3(3-0)	Nil

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6. **List of Elective Courses ****

- GEOG-6122 Cultural Geography
- GEOG -6123 Natural Hazards & Disaster Management
- GEOG-6124 Geography of Manufacturing
- GEOG-6125 Hydro Geography
- GEOG-6126 Medical Geography
- GEOG-6127 Political Geography
- GEOG-6128 Regional Planning & Development
- GEOG -6129 Climate Change Studies
- GEOG-6130 Agricultural Geography
- GEOG-6131 Conservation of Resources

7. **List of Interdisciplinary/ Allied Courses**

- GEOL-5101 Introduction to Geology
- URCM-5107 Mathematics I
- URCM-5108 Mathematics II
- ENVR- 5104 Environmental Geology
- CHEM-5101 Physical Chemistry
- CHEM-5102 Inorganic Chemistry
- ECON-5112 Introduction to Economics
- PHYS- 5101 Mechanics
- PSYC- 5101 Introduction to Psychology
- SOCI- 5101 General Sociology I
- STAT-5121 Introduction to Statistics
- ULAW-5130 Introduction to Basic Law
- INTR -5101 Introduction to international Relation
- POLS-5101 Introduction to Political Science

8. **List of Field Survey and Capstone Project*****

The students shall carry out field survey on any one of the following fields:

- GEOG-6181 Demographic Survey
- GEOG-6182 Hydrological Survey
- GEOG-6183 Industrial Survey
- GEOG-6184 Land Use Survey
- GEOG-6185 Landforms Survey
- GEOG-6186 Soil Survey
- GEOG-6187 Urban Survey
- GEOG- 6188 EIA (Environmental Impact Assessment)

Each student shall be required to collect data/information pertaining to his/her topic in a selected area/region, tabulate the data and submit project.

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"BS in Geography (5th Semester Intake) Scheme of Studies"

Semester-I

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Deficiency 1	GEOG-5102	Physical Geography *	3(3-0)	Nil
Deficiency 2	GEOG-5103	Human Geography*	3(3-0)	Nil
Major-1	GEOG-6113	Geographical Information System	3(2-1)	Nil
ID-1	----	Interdisciplinary/Allied course-I**	3(3-0)	Nil
ID-2	----	Interdisciplinary/Allied course-II**	3(3-0)	Nil
ID-3	----	Interdisciplinary/Allied course-III**	3(3-0)	Nil
ID-4	----	Interdisciplinary/Allied course-IV**	3(3-0)	Nil

Semester Total Credit Hours: 15-21

Semester-II

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Deficiency 3	GEOG-5104	Map Work *	3(2-1)	Nil
GE-I	URCG-5129 URCG-5131	Understanding of Holy Quran-I/ Ethics-I	1(0-1)	Nil
Major-02	GEOG-6114	Oceanography	3(3-0)	Nil
Major-03	GEOG-6115	Remote Sensing	3(2-1)	Nil
Major-04	GEOG-6116	Research Methods	3(3-0)	Nil
Major-05	GEOG-6117	Population Geography	3(3-0)	Nil
Major-06	GEOG-6118	Environmental Geography	3(3-0)	Nil

Semester Total Credit Hours: 16-19

Semester-III

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Deficiency 4	GEOG-5109	Climatology *	3(3-0)	Nil
Major-07	GEOG-6170 -	South Asia	3(3-0)	Nil
Major-08	GEOG-6119	Urban Geography	3(3-0)	Nil
Major-09	GEOG- 6120	Digital Image Processing	3(2-1)	Nil
Major-10	GEOG-61xx	Elective Course-I**	3(3-0)	Nil
Major-11	GEOG-61xx	Elective Course-II**	3(3-0)	Nil

Semester Total Credit Hours: 15-18

Semester-IV

Category	Course Code	Course Title	Credit Hours	Pre-Requisite
Deficiency 5	GEOG-5111	Quantitative Methods In Geography*	3(3-0)	Nil
GE-II	URCG-5130 URCG-5132	Understanding of Holy Quran-II/ Ethics-II	1(0-1)	Nil
Major-12	GEOG-6121	Geography of Pakistan	3(3-0)	Nil
Major-13	GEOG-61xx	Elective Course-III**	3(3-0)	Nil
Major-14	GEOG-61xx	Elective Course-IV**	3(3-0)	Nil
Compulsory	***GEOG-61xx	Field experience	3(0-3)	Nil
Compulsory	GEOG-6191	Capstone Project	3(0-3)	Nil

Semester Total Credit Hours:16-19

Degree Program Total: 62-77

*** Candidates having Associate Degree /B.A/B.Sc/under Annual System.**

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Summary

Sr. no.	Courses	No. of Courses	No. of Credit hours
01	Deficiency	05	15
02	Major	14	42
03	Compulsory	02	06
04	General Education	02	02
05	Inter Disciplinary	04	12
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GEOG - 5102	Physical Geography	3(3-0)

Course Brief:

This course provides an opportunity for understanding part of the complex physical and biological environment in which human beings live. It introduces basic processes that influence the characteristics and spatial relationships of climate, water cycle and vegetation. The first part of the course examines the interactions of solar energy with the Earth's atmosphere and surface, and how atmospheric circulation, precipitation, and weather systems are generated. The second part of the course covers the cycling of water and other Earth resources within the living zone - the biosphere. It focuses on how these cycles, together with the flows of energy, influence the nature and distribution of ecosystems and vegetation.

Course Learning Objectives:

This course provides patterns of human activities that are in response to and have an effect upon environmental processes, and are asked to observe and interpret aspects of their local environment in light of what they have learned.

Course Contents:

1. Definition, scope and major branches
2. Realms of the physical environment
3. Lithosphere
4. Internal structure of earth
5. Rocks origin, formation and types: Igneous, Sedimentary and Metamorphic Rocks
6. Plate tectonics, mountain building forces.
7. Geomorphic processes – endogenic and exogenic processes and their resultant landforms
8. Earthquakes and volcanic activity, folding and faulting
9. Weathering, mass wasting, cycle of erosion, erosion and deposition
10. Landforms produced by running water, ground water, wind and glaciers
11. Atmosphere
12. Composition and structure of atmosphere
13. Atmospheric temperature and pressure, global circulation
14. Atmospheric moisture and precipitation
15. Air masses and fronts
16. Cyclones and other disturbances
17. Hydrosphere
18. Hydrological cycle
19. Ocean composition, temperature and salinity of ocean water
20. Movements of the ocean water: waves, currents and tides
21. Biosphere

Recommended Texts:

1. Strahler, A. (2013).*Introduction to physical geography*.New York: John Wiley & Sons.
2. Thornbury, W. D. (2004).*Principles of geomorphology*. New Jersey: John Willy &Sons.

Suggested Readings:

1. Strahlar, A. N., &Strahlar, A. H. (2004).*Physical environment*.New York: John Wiley & Sons.
2. Stringer, E. T. (2004).*Modern physical geography*.New York: John Wiley & Sons.

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GEOG–5103	Human Geography	3(3-0) ✓

Course Brief:

This course provides an introduction to Human Geography. The major thrust is on the study of human societies in their relation to the habitat or environment. Dealing with the spatial distribution of societies, human geography covers a very wide field or its scope is enormous. It embraces the study of human races; the growth, distribution and density of populations of the various parts of the world, their demographic attributes and migration patterns; and physical and cultural differences between human groups and economic activities.

Course Learning Objective:

This course covers the relationship between man and his natural environment, and the way in which his activities are distributed. Human geography also takes into account the mosaic of culture, language, religion, customs and traditions: types and patterns of rural settlements, the site, size, growth and functions of urban settlements, and the functional classification of towns. The study of spatial distribution of economic activities, industries, trade, and modes of transportations and communications as influenced by the physical environment are also the important topics of human geography.

Course Contents:

1. Introduction
2. Definition, scope and branches
3. Basic approaches
4. Population and its characteristics and population distribution
5. Population structure and composition
6. Population dynamics (fertility, mortality, migration etc.)
7. Economic activities
8. Agriculture, mining, forestry, animal husbandry and poultry
9. Industries: cottage, light and heavy
10. Trade, transport and services
11. Tourism
12. Settlements
13. Theories of human settlement
14. Types of settlements

Recommended Texts:

1. Ahmed, Q. S. (2001).*Fundamentals of human geography*. Karachi: Royal Book Company.
2. Becker, A. & Seeker. (2002).*Human geography: culture, society, and space*., New Jersey: John Wiley and Sons

Suggested Readings:

1. Benko, G. & Shorhmay. (2001). *Human geography: a history for the 21st century*. London: Hodder Arnold.
2. Blij, H. J. D. (2002).*Human geography: culture, society, and space*. New Jersey. John Wiley and Sons.
3. Cloke, P. &Crang, P. (2005).*Introducing human geographies*, (2nded.).London: Hodder Arnold.

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GEOG -6113	Geographical Information System	3(2-1)

Course Brief:

The course aims to equip students with an understanding of GIS, evolution and applications of spatial data. In this class, students will be introduced to the study and design of maps, primarily through the application of a specialized computer mapping software program known as a Geographic Information System (GIS). GIS is a map-based computer decision support system that allows for the investigation of geographic data relationships. People that are trained in GIS are in high demand today, both in government and private industry.

Course Learning Objectives:

This study will focus primarily on GIS-based mapmaking techniques, including map design, symbology, map coordinates and georeferencing systems. Students will cover many important aspects of mapmaking, including map data collection and processing, field methods and GPS, cartographic communication, topographic map reading and analysis, and qualitative and quantitative mapping techniques.

Course Contents:

1. Introduction
   Definitions, key components, functional subsystem, Raster data model, vector data model, attribute model, Data acquisition techniques, data sources, data capturing techniques and procedures, data visualization of spatial data, layers, projections and transformation and datum.
2. Map design
   Symbols to portray points, lines, polygons and volumes,graphic variables, visual hierarchy, Data classification graphic approach, mathematical approach.
3. Spatial analysis
   Neighborhood functions, network, and overlayanalysis, buffering, spatial data quality, components of data quality, micro level components, macro level components, usage components, sources of errors, accuracy and resolution and uncertainty.
4. GIS Applications

Recommended Texts:

1. Chang, K.. (2006). *Introduction to geographic information systems*.Boston: McGraw-Hill Higher Education .
2. Demers, M.N. (2002). *Fundamentals of geographic information systems*. New York: John Wiley & Sons.

Suggested Readings:

1. Yeung., Lo, C.P. &Lal, A.K. (2003). *Concepts and techniques of geographic information system*. New Dehli: Prentice Hall.
2. Kiser, J.D., &Paine, D.P., (2003). *Aerial photography and image interpretation*, New York: John Wiley & Sons.
3. Janssen, L. L., &Huurneman, G. (2000). *Principles of remote sensing*: ITC, International Institute for Aerospace Survey and Earth Sciences

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GEOG -5104	Map Work	3(2-1)

Course Brief:

A unique aspect of geography is that it exposes students to a wide range of techniques for helping to understand human and environmental patterns and processes. Mapmaking is the study and practice of making representations of the Earth on a flat surface.

Course Learning Objectives:

This study includes everything from the gathering, evaluation and processing of source data, through the intellectual and graphical design of the map, to the drawing and reproduction of the final document. As such, it is a unique mixture of science, art and technology and calls for a variety of in-depth knowledge and skills on the part of the cartographer.

Course Contents:

1. Maps
2. Elements and types
3. Principles and methods of map making
4. Reading and reproduction
5. Scale: types and their use
6. Grid reference and indexation.
7. Map projections
8. Cylindrical
9. Conical
10. Zenithal
11. Construction, characteristics, and uses
12. Enlargement and reduction of maps
13. A study of the Survey of Pakistan maps
14. Physical and cultural features to be described and interpreted
15. Interpretation of weather maps of Pakistan

Recommended Texts:

1. Singh, G. (2009). *Map work and practical geography*. New Delhi: Vikas Publishing House Pvt. Ltd.
2. Singh, L. &Raghu,N. S. (2000) *Map work and practical geography*. New Delhi: Kalyanipublishers.

Suggested Readings:

1. Khan, M. Z. A. (1998). *Text Book of Practical Geography*. Delhi: Concept Publishing Company.
2. Bygott, J. (1952). *An introduction to mapwork and practical geography*. London: University Tutorial Press.
3. Bygott, J. (1955). *Mapwork and practical geography*. London: University Tutorial Press.

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Annex "XXI"

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URCG-5129

Model Course Outline
for the Course Understanding of Quran – I

Course Title: Understanding of Quran – I
Course Book: Muallim ul Quran (Volume 1, 2 & 3) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

Course Learning Outcomes:

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

1. Develop the ability to understand basic words of the Quran, phrases and sentences that do not contain verbs (unit 1 to 5 of Muallim ul Quran Book) and then sentences having present tense (first half of unit 6 of Muallim ul Quran Book).
2. Acquire strong foundation for understanding long verses of the Quran with clarity.
3. Comprehend Quranic vocabulary, particles (operative & non operative particles) , compounds (Adjective & Possessive compound), pronouns (singular & plural) and types of plural through hundreds of Quranic sentences.
4. Recognize and understand different styles of Quranic sentences, including nominal sentence, emphatic sentence, double emphatic sentence, negative sentence, interrogative sentence, oath –based sentences.
5. Strengthen understanding of fundamental Quranic linguistic styles, expressions and idioms.
6. Understand at least 30 to 40 % of each page of the holy Quran.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube.
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helping material:** Helping material for the teachers like quizzes, question papers and images is available on website.

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Course Outline:

Weeks	Lectures (1.5 hrs)	Units	Lessons	Assignments/Home Task	Linguistic Rules
1.	1.	1	1-8	Writing the meaning of Quranic words Lesson 1-8	Proper Noun Masculine & Feminine
	2.	1	9-14	Writing the meaning of Quranic words 9-14	Two kinds of plural Concept of (و) "And" Common Noun
2.	1.	1	15-17	Writing the meaning of Quranic words, phrases & translation of Sentences 15-17	Demonstrative Noun (This & That for Masculine (هذا- ذلك) Demonstrative Noun (This & That for Feminine) (ذلك- تلك)
	2	1	18-19 & Revision (Unit 1)	Writing the meaning of Quranic words , phrases & translation of Sentences 17-19 Quiz	Laam for emphasis (لام التاكيد) Superlative Degree like اكبر Revision of all Quranic Sentences
3.	1.	Unit 2	1-3	Writing the meaning of Quranic words, phrases & translation of Sentences 1-3	Emphatic Particle ان Preposition "For" (اللام) Preposition (فی)
	.	2	4-6	Writing the meaning of Quranic words, phrases & translation of Sentences 4-6	Preposition (علی- من- الی)
4.	1.	2	7- 9	Writing the meaning of Quranic words & translation of Sentences 7-9	Preposition (الباء) Absolute Negation Particle Exceptive Particle (لا النافية للجنس)(ما النافية) (إلا)
	٦	2	10-13 & Revision (Unit 2)	Writing the meaning of Quranic words, phrases & translation of Sentences 10-13 Quiz	Subordinating Conjunction(أن), Was (كان), Vocative Particle(حرف النداء)

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5.	1	Unit 3	1-2	Writing the meaning of Quranic phrases 1-2	Quranic Adjective Comparison (اسم تفضيل)
	2.	3	3-5	Writing the meaning of Quranic phrases & translation of sentences 3-5	Quranic Possessive Construction (مضاف ومضاف اليه)
6.	1	3	6-7	Writing the meaning of Quranic phrase translation of sentences 6-7	Quranic Possessive Construction (مضاف ومضاف اليه)
	2.	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.		Unit 4	1-2	Writing the meaning of Quranic phrase & translation of sentences 1-2	Personal Pronoun He(هو المتصل) Possessive Pronoun His ـه المتصل)
	2.	4	3-4	Writing the meaning of Quranic phrase & translation of sentences 3-4	Possessive Pronoun with prepositions like في بيته Pronoun "His" with prepositions like له منه فيه
8.		4	5-8	Writing the meaning of Quranic sentences 5-8	Personal Pronoun You(انت المتصل) Possessive Pronoun Your ك المتصل) Possessive Pronoun with prepositions like في بينك Pronoun "your" with prepositions like لك منك فيك
	2	Mid Term			

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9.	1.	4	9-12	Writing the meaning of Quranic phrases & sentences 9-12	Personal Pronoun She(هی المنفصل) Possessive Pronoun Her ہا المتصل) Possessive Pronoun with prepositions like فی بیتہا Pronoun "Her" with prepositions like لہا،
	2.	4	13-16	Writing the meaning of Quranic phrases & sentences 13-16	Personal Pronoun I (أنا المنفصل) Possessive Pronoun Her ي المتصل) Possessive Pronoun with prepositions like فی بیتی Pronoun "My" with prepositions like لی
10.	1	4	17 & Revision Unit 4	Revision of all Quranic sentences of Unit 4 Quiz	Adverb (حال)
	2.	Unit 5	1-2	Writing the meaning of Quranic phrases & sentences 1-2	Masculine Plural جمع المذکر السالم و جمع المذکر السالم المسبوق بحرف الجر
11.	1.	5	3-4	Writing the meaning of Quranic phrases & sentences 3-4	Possessive Construction with Plurals جمع المذکر السالم المسبوق بالإضافة
	2.	5	5-6	Writing the meaning of Quranic phrases, sentences & verses 5-6	Personal Pronoun They (هم المنفصل) Possessive Pronoun Their هم المتصل)
12.	1.	5	7-8	Writing the meaning of Quranic phrases, sentences & verses 7-8	Possessive Pronoun with prepositions like فی بیتہم Pronoun "Their" with prepositions like لہم
	2.	5	9-11	Writing the meaning of Quranic phrases, sentences & verses 9-11	Personal Pronoun You (أنتم المنفصل) Possessive Pronoun Your کم المتصل) Possessive Pronoun with prepositions

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					like في بيتكم
13.	1.	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)
	2.	5	15-16	Writing the meaning of Quranic sentences & verses 15-16	Possessive Pronoun with prepositions like في بيتنا Pronoun "Our" with prepositions like لنا
14.	1.	5	17-18	Writing the meaning of Quranic sentences & Verses 17-18	Demonstrative Pronoun These, Those (هؤلاء- أولئك)
	2.	5	19-23	Writing the meaning of Quranic sentences & Verses 19-23	(ما / إلا، إن / إلا، إنما، ليس، ما ، أ/أم، أن، بل، كان (ألا، أيس، اليوم، يومئذ، سبحان، مابيتيما، قل، إذن، بئس، نعم، كلا، ما ادراك، حسب، أعلم ب، مصير، مرجع، دينا(تمييز)
15.	1.	5	Revision Unit 5	Quiz	
	2.	5	1-3 (till Page 16)	Writing the meaning of Quranic Verbs &Translation of Quranic Sentences & Verses (1-3)	Introduction of Present Tense(فعل مضارع) & Verbal Sentence (جملة فعلية) Present Tense الفعل المضارع صيغة المفرد يعلم
16.	1.	6	3 (From Page 17) & 4 -5	Translation of Quranic Sentences & Verses 3-5	Present Tense الفعل المضارع صيغة المفرد يعلم
	2.	6	6	Translation of Quranic Sentences & Verses	Present Tense الفعل المضارع صيغة الجمع يعلمون

1-Course Description

The Ethics-I course is designed to provide students with a comprehensive understanding of ethical principles, practices, and theories in various societal contexts. Throughout this degree program, students will explore the complexities of ethical theories of semitic and non-semitic religions along with decision-making and develop critical thinking skills to navigate moral dilemmas. This course will also enable the students to interact with others religious identities with humanistic, inclusive and holistic approach

2- Learning Objectives

This course aims to:

1. Introduce students to the fundamental concepts, scope, and importance of ethics.
2. Explore the relationship between law, morality, and social values.
3. Develop a clear understanding of virtuous and immoral ethics and their impact on individual and collective life.
4. Study the role of major religious figures in the moral development of human society and enable students to apply ethical principles for personal development, conflict resolution, and social harmony.

3- Learning Outcomes

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

1. Students will be able to identify and analyze major ethical theories, values, and their scope in social and individual life.
2. Differentiate between law and ethics, and analyze their interrelationship.
3. Identify types of virtuous and immoral ethics and assess their social impacts.
4. Examine the ethical teachings of major religions and their relevance in contemporary society.
5. Apply ethical principles to address modern challenges in personal and professional life.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Introduction and Fundamentals of Ethics

1. Literal and terminological definition of ethics
2. Literal and terminological definition of values
3. Relationship between law and ethics
4. Need, importance, and scope of ethics

Unit 2: Types of Ethics and Their Impact on Society

- Virtuous ethics: concept, types, benefits, and outcomes
- Immoral ethics: concept, types, and harms
- Role of ethics in social refinement and establishment of peace

Unit 3: Virtuous Ethics (Akhlaq-e-Hasanah)

- Concept, need, and importance of virtuous ethics
- Scope of virtuous ethics in the light of religions
- Major virtues in revealed and non-revealed religions
- Impact of virtuous ethics on individual and collective life

Unit 4: Immoral Ethics (Akhlaq-e-Razilah)

- Concept of immoral ethics
- Social problems caused by immoral ethics
- Practical consequences of immoral ethics
- Major vices in revealed and non-revealed religions

Unit 5: Role of World Religious Figures in Moral Development

- Prophet Moses (AS): introduction, miracles, and role in moral refinement
- Prophet Jesus (AS): introduction, miracles, and role in moral refinement
- Prophet Muhammad (ﷺ): introduction, miracles, and role in moral refinement

Textbook

1. Izutsu, T. (2002). *Ethico-Religious Concepts in the Qur'an*. McGill-Queen's University Press.

Suggested Readings

1. Gert, B. (2005). *Morality: Its Nature and Justification*. Oxford University Press.
2. Macintyre, A. (2007). *After Virtue: A Study in Moral Theory*. University of Notre Dame Press.
3. Al-Ghazali, Abu Hamid (2001). *The Alchemy of Happiness*. Islamic Texts Society.
4. Nasr, S. H. (1994). *The Heart of Islam: Enduring Values for Humanity*. Harper One.
5. Beauchamp, T. L., & Childress, J. F. (2019). *Principles of Biomedical Ethics*. Oxford University Press.
6. Hasan, Z. (2010). *Ethics in Islam: Key Concepts and Contemporary Challenges*. Islamic Research Institute.

GEOG - 6114	Oceanography	3(3-0) ✓

Course Brief:

It describes knowledge about world's oceans their distribution, and its resources. To produce the students with the applicable knowledge about existence of oceans, formation of ocean floors, their distribution and effects of climate and ocean resource management. It may identify the impact of basic and applied knowledge of oceanography, to impart skills on the ocean distribution, existence of oceans, and availability of resources in oceans.

Course Learning Objectives:

This study focus on the spatial distribution of oceans and their effects Land, Ocean and atmosphere relationship, to study ocean currents, variability, and Mechanism. It will also discuss the law of sea and country rights for associated oceans and seas. It will discuss the ocean habitat to study the ocean resources and law of ocean territory.

Course Contents:

1. Introduction
2. Origin of oceans and seas
3. Major water masses and their distribution.
4. Morphology of the ocean basins.
5. Ocean floor deposits.
6. Their characteristics and classification.
7. Temperature, salinity and density of ocean water
8. Distribution, causes and effects
9. Oceanic circulation: waves, currents and tides, their nature, causes, effects and impact on environment.
10. Special phenomena: tropical storms; Tsunami.
11. Oceanography of Arabian Sea with special reference to Exclusive Economic Zone.

Lab. Work

Drawing features of the Ocean floor, mapping of the ocean currents, tides and associated phenomena.

Recommended Texts:

1. Douglas A. Segar. (1998). *Ocean sciences.*Boston: Wadsworth publishing Company.
2. Barnes, H. (2008). *Apparatus & methods of oceanography*. London: George Allen &Unwin Ltd.

Suggested Readings:

1. Duxbury, A.B & Duxbury, A.C. (1994). *An introduction to the world oceans.* Oxford: WMC Brown Publishers.
2. King, C.A.M. (2000). *Oceanography for geographers*. London: Edward Arnold Publishers. Ltd.
3. Pinet, P.R. (2002). *Invitation to oceanography*. London: Jones & Bartlett Publishers.

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| GEOG -6115 | Remote Sensing | 3(2-1) |

Course Brief:

It describes about knowledge of Remote Sensing (RS) and its practical implementation. To produce students, that has applicable knowledge about basic tools of GIS. The course aims to equip students with an understanding of GIS, evolution and applications of spatial data through Geo-spatial technologies. Remote sensing is the process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance from the targeted area. Special cameras collect remotely sensed images of the Earth, which help researchers "sense" things about the Earth.

Course Learning Objectives:

This study introduces knowledge of recording earth's surface features from space-borne platforms and different ways in which images can be analyzed. It will enable students to develop an understanding of common remote sensing products such as, earth resources satellite images, aerial photographs etc to develop a comprehension regarding ground-truthing aided by GPS.

Course Contents:

1. Introduction
2. History and Development
3. Concepts and Foundation of Remote Sensing and Electromagnetic spectrum
4. Visible Spectrum, Colour Theory
5. Atmospheric Attenuation
6. Types of Remote Sensing Systems
7. Type of Sensors
8. RBV, MSS, TM,HRV, HRPT/APT/AVHRR, MODIS (Terra and Aqua) non-imaging systems (RADAR)
9. Types of Satellites
10. Telecommunication, Spy, Scientific etc.)
11. Platforms (Orbits)
12. Ground Receiving Stations (Reception of Data)
13. Image Processing
14. Global Positioning System (GPS)
15. Applications of Remote Sensing
16. Remote Sensing in Pakistan: Potential and Prospects.

Recommended Texts:

1. ITC (2004). *Principles of remote sensing.* Netherlands: ITC Educational Textbook Series.
2. Campbell, J. B. & Wynne, R. H. (2011). *Introduction to remote sensing.* New York: Guilford Press.

Suggested Readings:

1. Iliffe, J. & Lott, R. (2008). *Datums and Map Projections for remote sensing, GIS, and Surveying* (2nd ed.). Manchester: Whittles Publishing.
2. Jensen, J. (2005). *Introductory remote sensing: Principles and Concepts.* New York: Freeman & Co.
3. Jensen, J. R. (2011). *Remote sensing of the environment: an earth resource perspective.* New Jersey: Prentice Hall.

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GEOG- 6116	Research Methods	3(3-0)

Course Brief:

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. Each research study has its own specific purpose, we may think of research objectives are: to create awareness among students regarding basics of geographical research.

Course Learning Objectives:

To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies); To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies); To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies); To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

Course Contents:

1. Introduction Research approaches
2. Research paradigms in Geography
3. Types of research: historical research, qualitative/descriptive research, quantitative/experimental research
4. Research design: research topic, formulation and statement of a problem, research questions, research hypotheses, research objectives, research plan
5. Literature review: Literature sources: Journals (types) Books, Monographs and web sources
6. Data collection, universe and sampling: primary and secondary data, sources of data
7. Selection of a sample and measuring instruments, basic considerations in sampling, size of sample, geo-statistical
8. considerations, Sampling units and design; points, traverses, random sampling, stratified sampling, systematic sampling
9. Field Techniques
10. Data analysis and interpretation: pre-analysis considerations.
11. Preparing data for analysis: use of the descriptive statistics and quantitative methods.
12. Data presentation
13. Research report writing; Proposal and Synopsis writing
14. Bibliography and references

Recommended Texts:

1. Therese, L. B (1999). *Doing social research*. Boston: McGraw Hill.
2. Nicholas J. Clifford & Gill V. (2003). *Key methods in geography*.London:Sye Publications.

Suggested Readings:

1. Keith Hoggart, Loretta Lees & Anna Davies (2002). *Researching human geography*. London: Arnold Publishers.
2. Dr. K. L. Narasimha Murthy (1992). *Research in geography: a survey*1st Ed.; Ashish Publishing House, New Delhi.
3. John W. Best & James V. Kahn, (2003). *Research in education*. New Dehli: Printice Hall Private Ltd.

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GEOG – 6117	Population Geography	3(3-0)

Course Brief:

This course introduces population geography to advanced undergraduate students, and graduate students. We will examine how and why aspects of population have been understood as 'problems' in different and times. he syllabus coverts the major concepts and basic tools of demography; key geographical and historical processes of population change such as fertility, mortality and migration; and the socio-economic, political, and environmental causes and consequences of population dynamics in different world regions and over time. The population dynamics are discussed in a way that incorporates economic, political, cultural and environmental issues.

Course Learning Objectives:

To develop this critical geographic approach to population issues, we will places examine trends in population, population patterns at several scales (global, national, urban) and the population processes (fertility, mortality, migration) that create them. Further, we will investigate how population processes are shaped by, and engender, larger proces.es of political, environmental, urban, economic, and cultural change.

Course Contents:

1. Introduction
2. Population theories
3. Sources and methods of population data collection and associated problems
4. Population distribution
5. Density
6. Urban and rural population
7. Population composition
8. Gender composition
9. Age structure, marital status, families and households, languages, religions, ethnic groups etc.
10. Population dynamics
11. Patterns of fecundity and fertility
12. Morbidity and mortality
13. Migration and its types
14. Demographic transition
15. Population gro.th and change
16. Population Projections

Lab. Work

Consultation of the Population Census of Pakistan and representation of population data on maps.

Recommended Texts:

1. Newbold, K. B. (2017). *Population geography: tools and issues*. Toronto: Rowman& Littlefield.
2. Ardagh, M. (2013).*Textbook of population geography*.New Delhi: Random Exports.

Suggested Readings:

1. John. I. C. (1997). *Population geography*.Toronto: Rowman& Littlefield.
2. Majid, H. (1994). *Population geography*.Karachi: Anmol Publications
3. Polunin, N. (1998). *Population and global security*.Cambridge: Cambridge University Press.

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GEOG- 6118	Environmental Geography	3(3-0)

Course Brief:

Environmental Geography, one of the most traditional parts of the discipline of Geography, encompasses natural science, social science, and humanistic understandings of the Earth's environment. Environmental Geographers study the complex relationships between humans and the natural environment over time and through space.

Course Learning Objectives:

This course will provide a historical, geographical, and humanistic foundation for understanding the environment and the plethora of environmental issues that confront us at the beginning of this century. It is a major aim of this course to produce environmentally aware students and to equip them with skills to enable them to become future decision-makers on environmental matters in whatever field they wish to pursue in the future. By studying this course students will be able to recognize what the issues are, and to view them from a geographic perspective. They will recognize the responsibilities they have in relation to other people, the environment, and sustainability, and there will be opportunities to initiate personal action.

Course Contents:

1. Evolution of Environmental Studies in Geography
2. Comparative Advantage of Geography
3. Concept of environmental management
4. Environment and Man interaction, Ecosystem, natural resources
5. Important Cycles
6. Population explosion, The human impact on the environment
7. Environmental hazards, Types of Hazards
8. Major Environmental hazards and Problems in Pakistan: Floods, Earthquake, Tsunami, Cyclones, Landslides, Droughts, Deforestation and Desertification
9. Water-logging and Salinity
10. Soil Erosion
11. Global Warming and ozone depletion
12. Environmental Pollution , Waste Management, Control and Mitigation Measures, Technology, awareness, Legislation, Ethics
13. Pakistan Environmental Act
14. National Conservation Strategy
15. National Environmental Quality Standard

Recommended Texts:

1. Arms, K. (2001). *Environmental science*. Philadelphia: Asunders College Publishing.
2. Basak, A. (2009). *Environmental studies.*New Delhi: Pearson.

Suggested Readings:

1. otkin, D. B. & Edward A. K. (2012). *Environmental science.*Hoboken: John Wiley & Sons.
2. Burton, I. R., W. Kates& Gilbert. F. W. (2000). *The environment as hazard.*Karachi. Oxford University Press.
3. Cunningham, W. P. (2007). *Environmental science: a global concern.* Boston: McGraw-Hill Higher Education.

M.F

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SARGODHA

GEOG – 5109	Climatology	3(3-0)

Course Brief:

The course provides an overview of the physical processes responsible for determining global and regional climate. This course gives a general introduction to meteorology and climatology. Meteorology topics include energy balance, moisture and cloud development in the atmosphere, atmospheric dynamics, small and large scale circulations, storms and cyclones, and weather forecasting. Climatology topics include the interaction between the atmosphere and oceans over long time periods, climate classification, and the potential for climatic change. It brings together information from rural communities, indigenous peoples and research workers on how they use agro- biodiversity to cope with climate change.

Course Learning Objectives:

It stimulates communication between agro-biodiversity researchers, users and maintainers. It identifies tools and practices relevant to using agro-biodiversity for coping with climate change and making these widely available. It also promotes awareness of the vital role of agro-biodiversity in adapting to climate change among key audiences, including donors, development agents and the global biodiversity community.

Course Contents:

1. Introduction.
2. Key concepts in climatology and meteorology.
3. Structure and composition of atmosphere.
4. Elements and factors of climate.
5. Insolation and Terrestrial heat budget.
6. Temperature distribution.
7. Humidity and its types; Condensation and their forms. Precipitation, formation and their types.
8. Atmospheric Pressure and global pressure belts.
9. Atmospheric Circulation: (Upper and Lower) air stability and instability, storms; Cyclones (hurricanes, typhoons) and tornadoes
10. Air masses and fronts.
11. Classification of climates; critical study of the Koppen, Miller and Thornthwaite classifications of major climates.
12. Climate variability and climate change: Natural and anthropogenic; Greenhouse gasses; global warming; acid rain, ozone layer depletion El-Niño and La-Niña, impact on precipitation distribution.
13. Climatic regions of Pakistan and their characteristics
14. Climatic data: sources, collection, analysis and presentation. Problems associated with data quality (spatial, temporal).

Recommended Texts:

1. Miller A. (2001). *Climatology*. Haryana: Shubhi Publications.
2. Barry. R. (1998). *Atmosphere, weather and climate*. London: Routledge.

Suggested Readings:

1. Shamshad, K.M. (1988). *The meteorology of Pakistan*. Karachi: Royal Book Co.
2. Strahler, A. N. (1998). *Elements of physical geography*. New York: John Wiley.
3. Diwan A. P. &Arora. D. K. (1995). *Origin of ocean*. New York: John Wiley.

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GEOG -6170	South Asia	3(3-0)

Course Brief:

South Asia, which contains nearly a quarter of the world's people, refers to the countries comprising the South Asian subcontinent: Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka, Maldives, and sometimes. The purpose to understand of the concentration is to provide cross-cultural interdisciplinary understanding of a complex civilization that is both ancient and modern, and of great significance in the contemporary world. In this course, interdisciplinary in scope, we will explore connections among religion, literature, social organization, and film in the formation of cultures in South Asia.

Course Learning Objectives:

This course will introduce representative themes and debates from a range of temporal, geographical, and social locations in South Asia and invite attention to their impact on the rest of the world.

Course Contents:

1. Introduction and History of South Asia
2. Geo-political importance of south Asia
3. Mountain of South Asia
4. Plains
5. Deserts
6. River and Lakes
7. Coastal area
8. Plateau
9. Religion
10. Language
11. Culture
12. Agriculture (Irrigation system and crops)
13. Industries
14. Poverty of Gender
15. Forest Distribution
16. Minerals
17. Climate

Recommended Texts:

1. Clothey, F. W. (2007). *Religion in India: A historical introduction*. New York: Routledge.
2. Yogendra, K., & Malik, A. (2009). *Government and politics in South Asia*(6th Ed.). Boulder: Col.Westview Press.

Suggested Readings:

1. McCloud, D. G. (2018). *Southeast Asia: tradition and modernity in the contemporary world*.New York: Routledge.
2. Fred W. (2007).*Clothey, religion in India: a historical introduction*.Glasgow: Blacker & Sons Ltd.
3. Yogendra, K., & Malik, A. (2009). *Government and politics in South Asia*. Boulder: Col. Westview Press.

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| GEOG -6119 | Urban Geography | 3(3-0) |

Course Brief:

This course explores the setting in which more than half of the world's people live--the city. Cities are the largest human artifacts, but how do they emerge and evolve? What are the similarities and differences between cities? Wh is the Central Business District of some cities thriving while others decline? These and many other questions are examined by urban geographers. This course will explore and analyze the various aspects, concepts and approaches of urban geography. The course will cover topics such as historic and contemporary urban development; spatial dimensions of the city; social and economic patterns; images of the city; inequality and the development of urban built environment.Throughout history, cities have been the centers of economic, political, and cultural life. Further, many of the critical issues of our time--social polarization, economic restructuring, environmental degradation, and poverty--are concentrated in urban areas.

Course Learning Objectives:

This course explores the relationships among cities in a global urban system as well as the internal spatial arrangement of cities. It asks questions about how people structure the spaces of cities as well as about how people's lives are affected by the ways cities are structured.

Course Contents:

1. Origin of towns.
2. Site and situation concept.
3. Process of urbanization in the world.
4. Urban function, economic base of urban centers.
5. Formal and functional classification of towns
6. Towns as central place
7. Urban hinterland.
8. Urban structure-different theories
9. Hierarchy of settlements-city size distribution
10. Rank size Rule
11. Law of primate city.
12. Urban expansion, metropolitan decentralization
13. Rural urban fringe-urban social life.

Recommended Texts:

1. Pacione, M. (2013). *Urban geography: A global perspective*. London: Routledge.
2. Wheeler, J. O., & Holloway, S. R. (2004). *Urban geography*. Hoboken: John Wiley & Sons Inc.

Suggested Readings:

1. Douglas, I., Goode, D., Houck, M., & Wang, R. (Eds.). (2010). *Handbook of urban ecology*. London: Routledge.
2. Mayer H.M. & Kohn C.F. (2000). *Readings in urban geography*. Chicago: University of Chicago Press.
3. Smailes, A.E. (2000).*The geography of towns*. London: Hutchinson and Co.

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| GEOG -6120 | Digital Image Processing | 3(2-1) |

Course Brief:

It describes knowledge about knowledge about Digital Image processing (DIP) and its practical implementation. To produce students, that has applicable knowledge about basic tools of image processing and sensor's system. The course aims to equip students with overview of digital image processing including visual perception, image formation, spatial transformations, image enhancement, color image representation and processing, edge detection, image segmentation, and morphological image processing. Since 1964 the advent of large-scale digital computers and the space program have made digital image processing one of the most rapidly growing fields in electrical engineering.

Course Learning Objectives:

Image processing has found much more wide applications not only in the space program, but also in the areas such as medicine, biology, industrial automation, astronomy, law enforcement, defense, intelligence. With the progress made in multimedia these days, digital image processing finds more wide applications. It has become an indispensable part of our digital age.

Course Contents:

1. Multispectral, Thermal and Hyperspectral Scanning
2. Satellite Systems
3. Digital Image Processing and Image Enhancement
4. Introduction, Image Rectification and Restoration, Image Enhancement, Contrast Manipulation
5. Spatial Feature Manipulation, Multi-Image Manipulation
6. Image Classification
7. Data Merging and GIS Integration
8. Geometric Image Correction, Spectral Image Enhancement, Spatial Image Enhancement - Operations in Spatial Domain, Spatial Image Enhancement - Operations in Frequency Domain
9. Image Classification – Supervised and Unsupervised Classification
10. Image Classification - Object Oriented Classification
11. Microwave Sensing
12. Application of Remote Sensing
    Land Cover Mapping, Land use change monitoring, Urban expansion Mapping, Environmental Monitoring, Cadastral Mapping

Recommended Texts:

1. Lilles T. M. & Kiefer, R. W. (2004).*Remote sensing and image interpretation.*New York: John Wiley & Sons.
2. Campbell, J. B. & Wynne, R. H. (2011).*Introduction to remote sensing*. New York: Guilford Press.

Suggested Readin

1. Lo, C. P. (2000).*Applied remote sensing*. Essex: Longman.
2. ITC (2004).*Principles of remote sensing.*ITC Educational Textbook Series.Enschede, The Netherlands.
3. Muralikrishna, I. V. (1992).*Remote sensing applications and geographic information systems.* New Delhi: McGraw Hill.

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GEOG - 5111	Quantitative Methods in Geography	3(3-0)

Course Brief:

To train students in collection, analysis, interpretation and presentation of quantitative spatial data and to enable them to organize and conduct independent research. To use database software for the analysis of both Spatial and Temporal data. Quantitative techniques are the techniques that are concerned with collection, organization, presentation, analysis and interpretation of data.

Course Learning Objectives:

The quantitative techniques in geography are a recent development. The hard numbers behind any good research project are called quantitative data. Quantitative data is the language of science. It uses mathematical models, theories, and hypotheses. Quantitative data and qualitative data, in which you observe the non-numerical qualities of your subject, go hand-in-hand.

Course Contents:

1. Introduction
2. Quantitative revolution and its impact on Geography
3. Parametric and non-parametric statistics
4. Nature of geographical data and measurement scales.
5. Data summarizing techniques
6. Theory of central tendency
7. Dispersion
8. Variability.
9. Time Series: graphs, growth and decline, index numbers, logarithmic scales, trends and fluctuations
10. Components of time series.
11. Methods of drawing trend lines for linear and exponential series scatter diagrams
12. Standard errors and probability, correlation and regression.
13. Quantitative models in Geography

Lab. Work

1. Introduction to EPI-Info SPSS E-view, MS Excel, MiniTab and other relevant software database for quantitative analysis.

Recommended Texts:

1. Haring, L. L. (2002). *Introduction to scientific geographic Research*. Oxford: ECB.
2. Levin, J. (2006). *Elementary statistics in social research*.New Delhi: Pearson.

Suggested Readings:

1. Matthew, H. & Foster, I. (2001). *Geographical data, sources, presentation and analysis*.London: Oxford University Press.
2. Mckillup, S. & Melinda, D. D. (2010). *Geostatistics explained*. Cambridge: Cambridge University Press
3. Walford, N. (2011). *Practical statistics for geographers and earth Science*. Singapore: Wiley-Blackwell.

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URCG-5130

Model Course Outline
for the Course Understanding of Quran – II

Course Title: Understanding of Quran – II
Course Book: Muallim ul Quran (Volume 3, 4 & 5) by Dr Ubaid ur Rahman
Credit Hours: 1 (0-1)
Contact Hours: 3 per week
Weeks: 15-16 (45-48 hours)

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

1. Directly comprehend hundreds of Quranic sentences & verses.
2. Understand at least 80 to 85 % of each page of the holy Quran.
3. Understand common verses across different Quranic topics.
4. Achieve proficiency in the basic and advance linguistic aspects of the Arabic language.
5. Understand the difference between Quranic verbs in various forms, such as present, past and imperative.
6. Develop the ability to understand long verses of the holy Quran independently and then comprehend their interpretation.

Provision of material, content and books:

- **Paper book:** All volumes are available in printed book form.
- **Tutorial videos:** Teaching video of each lesson available on YouTube.
- **Confirmation Videos:** A complete series of confirmation videos of all lessons is available in which the student can confirm his answers.
- **A flipbook:** A flipbook edition is also accessible.
- **Helpline material:** Helping material for the teachers like quizzes, question papers and images is available on website.

Course Outline:

Weeks	Lectures	Units	Lessons	Assignments/Home Task	
1.	1.	6	6	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر غائب مثل یجوبون
	2.	6	7-8	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر غائب مثل یعدون
2.	1	6	9-10	Understanding & Translation of Verses	Present Tense صیغۃ واحد مذکر مخاطب (تسعد) وجمع مذکر مخاطب (تبدون)
	2	6	11-12	Understanding & Translation of Verses	Present Tense صیغۃ جمع مذکر مخاطب (تبدون)

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					صيغة المتكلم (اعبد)
3.	1.	6	13	Understanding & Translation of Verses	Present Tense صيغة جمع المتكلم (نعبد)
		6	14-15	Understanding & Translation of Verses	Negative Imperative صيغة المفرد وصيغة الجمع , لا تعبد، لا تعبدوا
4.	1.	6	16-17	Understanding & Translation of Verses	Conditional Sentences & masdar moawal (مصدر مؤول)
	2.	6	18-19	Understanding & Translation of Verses	Laam ottaleel (لام التعليل) & Laam ul jhood(لام الجحود)
5.	1.	6	20-21	Understanding & Translation of Verses	Present with object pronouns & Passive Voice
	2.	6	Revision (Unit 6)	Quiz	
6.	1.	Unit 7	1 (sec 1-3)	Understanding & Translation of Verses	Past Tense صيغة المفرد الغائب
	2.	6	1 (Sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة المفرد للغائب
7.	1.	6	1 (Sec 5-6)	Understanding & Translation of Verses	Past Tense صيغة المفرد للغائب
	2.	6	1 (Sec 7-9)	Understanding & Translation of Verses	Past Tense صيغة للمفرد للغائب
8.	1.	7	Revision	Understanding & Translation of Verses QUIZ	Past Tense صيغة المفرد للغائب
		MID TERM			
9.	1.	7	2 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
10.	1.	7	2 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
	2.	7	2 (sec 6-7)	Understanding & Translation of Verses	Past Tense صيغة الجمع للغائب عبدوا
11.	1.	7	3 (sec 1-2)	Understanding & Translation of Verses	Past Tense صيغة الجمع المتكلم عبدنا

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	2.	7	3 (sec 2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عدنا
12.	1.	7	3 (sec 3-4)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عدنا
	2.	7	3 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمتكلم عدنا
13.	1.	7	4 (sec 1-2-3)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عدتم
	2.	7	4 (sec 4-5)	Understanding & Translation of Verses	Past Tense صيغة الجمع للمخاطب عدتم
14.	1.	7	5-6	Understanding & Translation of Verses Quiz	Past Tense صيغة المتكلم والمخاطب عدتُ ، عدتَ
	2.	7	7	Understanding & Translation of Verses	Past Tense صيغة المؤنث للغائب عدتْ
15.	1.	7	8	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول للمفرد
	2.	7	9	Understanding & Translation of Verses	Passive Voice (Past Tense) فعل مجهول الجمع
16.	1	8	1-4	Understanding & Translation of Verses	Imperative Verb for singular فعل الأمر للمفرد
	2.	7	5-8	Understanding & Translation of Verses	Imperative Verb for plural فعل الأمر للجمع

URCG-5132	Ethics – II	1 (1-0)

Ethics-II

URCG-5132

1 (0-1)

1-Course Description

The course *Ethics-II* is designed to provide students with a deeper understanding of ethical principles and practices from both Semitic and non-Semitic religions, as well as their application in professional and social contexts. Students will engage with Jewish, Christian, Islamic, Hindu, Buddhist, Sikh, Confucian, and Jain ethical traditions. The course emphasizes moral reasoning, decision-making, tolerance, and peacebuilding. It aims to cultivate an inclusive, humanistic, and holistic approach towards ethical living and interfaith engagement.

2- Learning Objectives

The course objectives are to:

1. Understand the fundamental principles and theories of ethics.
2. Introduce the ethical and moral teachings of Judaism, Christianity, Islam, and Hinduism.
3. Explore the ethical teachings of non-Semitic religions such as Buddhism, Sikhism, Confucianism, and Jainism.
4. Develop critical thinking skills to evaluate ethical arguments and theories.
5. Promote ethical leadership and interfaith harmony.

3- Learning Outcomes

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

1. Identify and analyze major ethical theories and teachings from world religions.
2. Understand the role of religions in improving moral values and social behavior.
3. Demonstrate ethical decision-making in various personal and professional contexts.
4. Recognize the impact of ethical decisions on individuals, communities, and society.
5. Apply skills of ethical leadership, including communication, conflict resolution, and inclusive engagement.

4-Course Structure

1. Interactive lectures, Group discussions and debates
2. Reflection papers and presentations
3. Assignments and Quiz

Course Contents

Unit 1: Ethical Teachings of Semitic Religions

- Judaism and its ethical teachings
- Christianity and its ethical teachings
- Islam and its ethical teachings

Unit 2: Ethical Teachings of Non-Semitic Religions

- Hinduism and its ethical teachings
- Sikhism and Buddhism: ethical values and practices
- Confucian and Jain ethical traditions

Unit 3: Professional Ethics

- Ethics for students and teachers
- Ethics in doctor-patient relationships
- Ethics in trader-customer interactions

Unit 4: Concept and Significance of Tolerance

- Definition, need, and importance of tolerance
- Teachings of Semitic religions on tolerance and their contemporary relevance
- Teachings of non-Semitic religions on tolerance and their contemporary relevance

Unit 5: Foundational Values and Ethics for Peacebuilding in Society

- Respect for sacred scriptures, personalities, places of worship, and religious symbols
- Promotion of tolerance and broadmindedness
- Encouragement of dialogue and harmony
- Benevolence towards humanity
- Establishment of justice and fairness
- Patience, forbearance, and forgiveness

Textbook

- Kidder, R. M. (2009). *How Good People Make Tough Choices: Resolving the Dilemmas of Ethical Living*. Harper.

Suggested Readings

1. Barash, D. P., & Webel, C. P. (2014). *Peace and Conflict Studies*. Sage.
2. Smart, N. (1998). *The World's Religions*. Cambridge University Press.
3. Nasr, S. H. (2003). *The Heart of Islam: Enduring Values for Humanity*. HarperOne.
4. Sharma, A. (2006). *Hindu Ethics: Purity, Abortion, and Euthanasia*. SUNY Press.
5. Harvey, P. (2000). *An Introduction to Buddhist Ethics: Foundations, Values and Issues*. Cambridge University Press
6. Coward, H., & Perkinson, J. (2013). *A Cross-Cultural Dialogue on Ethical Leadership*. Wilfrid Laurier University Press.
7. Confucius. (1998). *The Analects*. Oxford University Press.

GEOG - 6121	Geography of Pakistan	3(3-0)

Course Brief:

Pakistan Geography is a vital topic for study because it allows a student to understand the planet in a way that clarifies various global political issues and to see the relationship between people, groups and the physical environment in which they live. Geography gives us information about various types of climates, natural conditions, mineral wealth etc. of the various nations.

Course Learning Objectives:

As the world becomes more interrelated and interdependent through technological advances, it is increasingly important to understand the physical and cultural differences of other places. Studying of Pakistan geography also opens a link to understanding the history of one's own culture, as well as that of others. An understanding of geography also allows one to make smart choices when dealing with issues regarding the relationship of society to the physical environment.

Course Contents:

1. Introduction
2. Geo-strategic position of Pakistan
3. Location and Geographical significance
4. Geo-political Importance
5. Administrative setup
6. Land and Physical Environment:
7. Physiography
8. Climate and climatic regions o Hydrology
9. Soils and vegetation
10. The People
11. Population characteristics: structure, composition and distribution
12. Population Change
13. Urbanization
14. Economy
15. Agriculture (crops and livestock)
16. Irrigation
17. Power and mineral resources
18. Industries
19. Trade
20. Tourism
21. Transport and Communication
22. Major challenges of Pakistan
23. Water, power, security and environmental issues

Recommended Texts:

1. Khan, F. K. (2015). *Geography of Pakistan.*Karachi: Oxford University Press.
2. Ahmad, K. S. (2000). *Geography of Pakistan.* Karachi: Oxford University Press.

Suggested Readings:

1. Burkey, J. S. (1991). *Pakistan the continuing search for nationhood.*Oxford: Western Press Oxford.
2. Davidson, A. P. & Ahmad, M. (2003). *Privatization and the crisis of agricultural extension: the case of pakistan, king's soas studies in development geography.*New Delhi: Ashgate Publishing.

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GEOG - 6122	Cultural Geography	3(3-0)

Course Brief:

This course provides an overview of the field of cultural geography. This area of study centers its attention on spatial variations among cultural groups and the special functioning of society, and the changing and multifaceted relationships between people and the environments in which they reside. Students will learn the basic geographical tools and concepts needed to understand the intricacy of spaces and areas and to appreciate the interconnections between their lives and those of people in different parts of the world.

Course Learning Objectives:

This course provides knowledge of and about the creation of places and regions, an understanding of both the interdependence of places and regions in globalizing world, and the major changes that have taken place in global, regional, and local landscapes.

Course Contents:

1. Introduction
2. Definition of Culture & Cultural Geography, Scope of Cultural
3. Geography & its relationship with other Disciplines.
4. Basic themes of cultural geography:
5. Cultural Ecology
6. Cultural Diffusion
7. Cultural Regions/Area
8. Cultural Integration
9. Cultural Landscape.
10. Cultural History:
11. Paleolithic Age: Hunting & Gathering Culture
12. Neolithic Age: Agricultural World Revolution.
13. Industrial Revolution & Urbanization
14. Detailed Study of Stages of Social Cultural Change
15. Geo-Cultural Study of the following: Religion

Recommended Texts:

1. Fouberg, E. H., Murphy, A. B., & De Blij, H. J. (2009). *Human geography: people, place, and culture.* New York: John Wiley & Sons.
2. Terry G. J. Lester R. (2000). *Human mosaic.* New York: Harper Collins Publishers.

Suggested Readings:

1. Atkinson, D., Jackson, P., Sibley, D., &Washbourne, N., (2005). *Cultural geography: A critical dictionary of key ideas.* IB Tauris.
2. Anderson, K., Domosh, M., Pile, S., & Thrift, N., (2002). *Handbook of cultural geography.* Singapore: Sage.
3. Horton, J., &Kraftl, P., (2013). *Cultural geographies: An introduction.* London: Routledge.

m.f

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GEOG - 6123	Natural Hazards and Disaster Management	3(3-0)

Course Brief:

This course covers the mitigation concepts, implementation approaches planning and types of Hazards. It is a multidisciplinary research oriented subject for planning and development. This is a course on applied hazard mitigation, but because it is a graduate level course, the focus will not be only on the fundamentals of hazard mitigation but on the fundamentals and their application. Students have had some introduction to hazard mitigation through NHDM. The application aspect of this course addresses the relationship of hazards and their behaviors which cause disasters and how local, state, and federal emergency management agencies can mitigate the potential threats.

Course Learning Objectives:

Hazard mitigation is actually hazards management, much like emergency preparedness, response, and recovery have to with disaster management. Thus, in emergency management we deal with both hazards and disaster management. The approach used in this present course is to address hazards management or the management of hazards so that future disaster impacts will be reduced or eliminated.

Course Contents:

1. The Concept
2. The Nature of the Phenomena
3. Dynamics of Potentially Disastrous Natural Hazards
4. Impact of Natural Hazards and Likely Disasters
5. Scale
6. Risks
7. Vulnerability
8. The Disaster Management Cycle
9. Application of RS, GIS, GPS Tools in the Management of following Natural Hazards / Disasters
10. Flood
11. Earthquake
12. Cyclones
13. Rainfall
14. Efficacy of the Integrated Development Planning and Natural Hazards/ Disasters

Recommended Texts:

1. Bryant, E. (200). *Natural hazards*. Cambridge: Cambridge University Press.
2. Cochrane, M.A. (2009). *Tropical fire ecology: climate change, land use and ecosystem dynamics*.Springer: Praxis Publishing.

Suggested Readings:

1. Ghosh, G.K. (2006). *Disaster Management*. New Delhi: A.P.H Publishing Corporation.
2. Pirarizy, A.A. (2002). *Environmental Geography and Natural Hazards*. New Delhi: A.P.H Publishing Corporation.
3. Smith, K. (200). *Environmental Hazards. Assessing Risk and Reducing Disaster*. London: Routledge.

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GEOG - 6124	Geography of Manufacturing	3(3-0)

Course Brief:

The term "manufacturing" includes those activities by which man changes the form or nature of raw materials, converting them into more useful products. The course focuses on explanations of factory location, the role of location in corporate strategies and the geographical structure of production systems, including industrial districts. Particular attention is paid to the organizational structure of the economy, especially the dominant role played by multinational firms (MNCs), and the forces that shape the agglomeration and dispersal of activity.These transforming operations are conducted in factories, to which are brought raw materials from various source regions and from which go finished products to diverse market regions.

Course Learning Objectives:

Factories which characterize industrial regions may be interrelated: some may supply semi-finished items to other factories; others may be branch plants; and still others may have a service relationship, such as a power plant, which supplies electrical energy to other factories. A relationship also exists between factories and non-factory elements.

Course Contents:

1. Introduction to Geography of Manufacturing:
2. Definitions and concepts, and organization.
3. Classification of industrial activities.
4. Historical Development of Industrial Activity:
5. From industrial revolution to green paradigm.
6. Modern trends in manufacturing.
7. Industrial Location:
8. Approaches to location dynamics.
9. Location factors.
10. Location models.
11. Location theories.
12. Geographical Analysis of Selected Industries:
13. Light industries (Cotton textiles, sugar industry)
14. Heavy industries (Iron and steel, petro-chemicals, cement)
15. Modern Issues in Manufacturing:
16. Patterns of international production and the industrialization process.
17. De industrialization.
18. Industry and environmental problems.
19. Industrial planning and management.

Recommended Texts:

1. Alexanderson, G. (2000). *Geography of manufacturing*.Englewood Cliffs: Prentice Hall Publications.
2. Altaf, Z. (2000). *Entrepreneurship in the third world risk and uncertainty in industry in Pakistan*.London: Croom Helm, Ltd.

Suggested Readings:

1. Chapman, K. & Walker, D.F. (1991). *Industrial Location*.(2nd ed.).Oxford: Wiley Eastern Ltd.
2. Emery, J.S. & Shaw, J.H. (2000). *Cities and Industries*. Milton: Jacaranda Press.
3. Hayter, R. (2000). *The Dynamics of Industrial Location*.New York: John Wiley & Sons.

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GEOG - 6125	Hydro Geography	3(3-0)

Course Brief:

It describes advanced knowledge about Water resources, water resource management, Hydrology, distribution and availability of water. This course provides a basic introduction to hydrologic processes, including fundamentals of hydrology, rainfall-runoff modeling, hydraulic processes (including both pressurized pipe flow and open channel flow), and hydrologic frequency analysis.

Course Learning Objectives:

Hydrologic frequency analysis was applied in the computation of design flows and in the analysis and design of hydraulic systems such as pipe networks and storm water management systems. Computational laboratory sessions (including geographic information systems and simulation models) and experimental laboratory sessions reinforce lectures and provide hands-on learning opportunities. By the end of this course, students should be able to apply standard techniques, computational tools, and data used by engineers in conducting hydrologic analysis.

Course Contents:

1. Introduction
2. Hydrological Cycle and Water Balance: Water Reservoirs, Hydrological Cycle, Water Balance
3. Precipitation and Rainfall
4. Runoff: Factor affecting the Runoff, Runoff Cycle and Phases of Runoff, Measurement of Runoff
5. Ground Water
6. Floods: Causes and Seasonal Distribution of Floods, Flood Protection and Planning, Geographical Distribution of Floods
7. Glacial Water: Glacial Nourishment and Wattage, Glacial Runoff, Glacial Flow, Response of Glacier to Climatic Changes
8. Droughts: Extent and Distribution of Droughts, Drought Severity, Frequency and Duration, Hydrological Relations in Draughts
9. Lakes: Origin and Diversity, Hydrological Cycle and Water Balance Lakes, Geographical Distribution
10. Water Pollution: Classification of Water Pollutants, Extent and Distribution of Water Pollutants, Effects of Water Pollution on Fauna and Flora
11. Quantitative Hydro Geography: Basis Concepts, Areal Aspects of Drainage Basins
12. GIS and RS Application:

Recommended Texts:

1. Raghunath, H. M. (2006). *Hydrology: principles, analysis and design*: New Age International.
2. Ward, R.C. & Robinson, M. (2000). *Principles of hydrology*.London: McGraw Hill.

Suggested Readings:

1. Bittinger, M. W. (2000). *Water resources, use, and management*. Proceedings of a symposium held at Canberra. Ed in S. (Hill, Eds). Cambridge: Cambridge University Press.
2. Meinzer, O.E. (2000). *Hydrology*. New York: McGraw Hill.
3. Chow, V. T. (2000). *A handbook of applied hydrology*. New York: McGraw Hill.

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GEOG -6126	Medical Geography	3(3-0)

Course Brief:

Medical geography is an important "new" area of health research that is a hybrid between geography and medicine dealing with the geographic aspects of health and healthcare. Medical geography studies the effects of locale and climate upon health. It aims to improve the understanding of the various factors which affect the health of populations and hence individuals. It is also called health geographies. Focuses on the design of G.I.S-based models to address health and healthcare issues.

Course Learning Objectives:

Topics include a conceptual framework, landscape epidemiology models, disease diffusion models, health accessibility, human health behavior and location-allocation of health services. Laboratory section provides hands-on experience applying these models with GIS tools.

Course Contents:

1. Introduction to Medical Geography:
2. Definitions, themes, concepts, Nature & scope of Medical Geography
3. The Historical Development of Medical Geography
4. The status of Medical Geography.
5. Factors inflecting the Patterns of Health & Disease:
6. Geographical Factors.
7. Physical Factors / Environmental Factors.
8. Cultural Factors.
9. Socio – Economic & Political Factors.
10. Patterns & Processes of Health & Disease:
11. Spatial variations in health & welfare patterns.
12. Role of Geography in exploring the impacts of diseases.
13. Models in Medical Geography
14. Epidemiological Transition
15. Health & inequalities
16. Inverse care law.
17. Global Patterns of health & Disease.
18. Global Eradication of disease.
19. Progress in Medical Geography:
20. Recent Issues & Developments in Medical Geography.
21. GIS, Remote Sensing & Health studies.
22. Changing Societies & future Health care.
23. Geography, Health care & Planning.

Recommended Texts:

1. Lloyd, J. (2002) *Health &welfare*.London: Holder & Stoughton.
2. Izhar, F. (2004). *Geography & Health: A study in medical Geography*.New Delhi: A.P.H. Publishing Corporation.

Suggested Readings:

1. Leninan, J.& Fletcher, W.W. (2000). *Health & the environment*(1st ed.).Glasgow: Blacker & Sons Ltd.
2. Lloyd, J. (2002). *Health & welfare*, Holder & Stoughton London.

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GEOG –6127	Political Geography	3(3-0)

Course Brief:

Political geography is concerned with the study of both the spatially uneven outcomes of political processes and the ways in which political processes are themselves affected by spatial structures. In this course, we will survey Political Geography, a subfield of Human Geography whichfocuses on questions of space and power and the interconnections of geography and politics.All politics are geographical, from the spatial arrangement of local governments to theterritorial basis of international trade. We will explore how politics works with a concern forwhere political impacts occur at a variety of geographical scales (from the international to thelocal) while also considering how geographical factors impact political actions.

Course Learning Objectives:

This studies examine the geography of various formal institutions and practices of politics as well as the informal politics of everyday life within places. In short, we'll explore how political power makes geographies and how, in turn, geography may be said to make politics.

Course Contents:

1. Nature and objectives of Political Geography, Definition and development of political geographic thought.
2. A critical exan ation of the following:
3. Concept of environmental relationship in political geography.
4. The concept of geopolitics its development and short-comings
5. National deterministic theories of Germans and French possibilities.
6. State as a Politico-geographic Phenomenon:
7. Concept of the state and its classification. Chief political-geographic characteristics of states.
8. Hierarchy of political area.
9. Frontiers and boundaries: their concepts, functions and classification.
10. Core areas, ecumenical area and capitals.
11. Approaches and forces in the politico geographic study of state:
12. A critical examination of the following approaches:
13. Simple descriptive approach.
14. Historical approach.
15. Morphological approach.

Recommended Texts:

1. Jones, M., Jones, R., Woods, M., Whitehead, M., Dixon, D., & Hannah, M. (2014). *An introduction to political geography: space, place and politics*. London: Routledge.
2. Kruys, B. G. G. (2002). Controlling land borders: A comparison of the United States of America, Germany and South Africa. *Strategic review for southern Africa*, *24*(2), 114.

Suggested Readings:

1. Agnew, J. (1997). *Political geography: a reader*. London: Arnold.
2. Bakis, H. (1995). Communication and Political Geography in a Changing World' *Revue Internationale de Science Politique*, *16* (3). 219-311.
3. Williams, N. (2009). *Border Politics: The limits of sovereign power: the limits of sovereign power*. Edinburgh: Edinburgh University Press.

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GEOG - 6128	Regional Planning & Development	3(3-0)

Course Brief:

Regional planning deals with the efficient placement of land-use activities, infrastructure, and settlement growth across a larger area of land than an individual city or town. Regional planning is a sub-field of urban planning as it relates land use practices on a broader scale. This course will explore and analyze the various aspects, concepts and approaches of urban geography.

Course Learning Objectives:

The course will cover topics such as historic and contemporary urban development: spatial dimensions of the city; social and economic patterns; images of the city; inequality and the development of urban built environment. It also includes formulating laws that will guide the efficient planning and management of such said regions. Regions require various land uses; protection of farmland, cities, industrial space, transportation hubs and infrastructure, military bases, and wilderness. Regional planning is the science of efficient placement of infrastructure and zoning for the sustainable growth of a region.

Course Contents:

1. Principles and Scope of Planning and Development
2. Planning: A Geographer's View. ii. Planning Processes
3. Planning as an Activity
4. Objectives in Planning
5. Objectives of Regional Development Efforts.
6. Implications of Regional Development:
7. Defining Regions, ii Regional Hierarchy and Classification, iii. Regionalism or Administrative Boundaries?, iv. Determining Regional Boundaries, v. Factors contributing to Uniformities and Disparities in Regions, vi.
8. Resources and Planning:
9. The Resource Base.
10. Resource Evaluation.
11. Utilization of Resources for Planning and Development.
12. Urban and Regional Planning:
13. Urban Growth Patterns.
14. Impact of Industrialization.
15. Planning for Cities and City Regions.
16. Rural Planning:
17. Agricultural Planning and Rural Development.

Recommended Texts:

1. Hall, P. (2000). *Urban and regional planning*(2nd ed.). London: Allen &Unwin.
2. Hudson, R. & Lewis J.R. (2000). *Regional planning in Europe*.London: Pion Ltd.

Suggested Readings:

1. Birmingham, W & Ford, A.G., (2000). *Planning and growth in rich and poor countries*. London: George Allen and Unwin Ltd.
2. Cox, K. R. (2000). *Location and public problems*.Oxford: Basil Black-Well.
3. Frey H. (1999). *Designing the city towards a more sustainable Urban Form*.London: Routledge.

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GEOG6129	Climate Change Studies	3(3-0)

Course Brief:

The purpose of climate change studies is multi-faceted and driven by the urgent need to understand, address, and mitigate the challenges posed by climate change. Climate change studies aim to deepen our understanding of the Earth's climate system and the factors driving climate change. Climate change studies assess the potential impacts of changing climate conditions on various natural and human systems. Climate change studies contribute to the development of adaptation strategies that help societies and ecosystems cope with the impacts of climate change. It also plays a crucial role in identifying and assessing mitigation strategies to reduce greenhouse gas emissions.

Course Learning Objectives:

Climate change studies provide scientific evidence and insights to inform policy development and decision-making processes at all levels, from local to global. Overall, the purpose of climate change studies is to provide knowledge, evidence, and strategies that can inform decision-making, promote sustainable development, and help societies and ecosystems adapt to and mitigate the impacts of climate change.

Course Contents:

1. Introduction
2. Climate systems, Mechanisms of climate change, Paleo-climate
3. Internal Forcing Mechanism, External Forcing Mechanism
4. Melankovitch cycle, Seasonal variation Natural variability of climate
5. Extreme Events Tornadoes and Hurricanes, Thunderstorm Hazard
6. Global warming, Ozone depletion, Green House effect, Carbon Cycle Global Perspective
7. Currents of Pacific, Atlantic,& Indian Oceans, Effects of Currents on Climate change
8. Climatic Regulation Organization and Policies,
9. UNFCCC, IPCC, Assessment reports brief Discussion
10. Weather, Modification and Atmospheric Optics
11. NOAA, WMO, Moisture & precipitation process, Thermohaline, &Atmospheric circulation
12. El-NINO , Global Impact s of EL-NINO
13. Regional patterns of climate variability
14. North Atlantic Oscillation (NAO), Atlantic Multi-decadal Oscillation (AMO)
15. Pacific Decadal Oscillation (PDO), Indian Ocean Dipole (IOD)
16. Madden Julian Oscillation, Arctic and Antarctic Oscillation
17. Latitudinal variation of climate, Measurement of climate
18. Global system of climate change, Global and hemispheric variability
19. Climate Change Impacts in Pakistan, Climate change mitigation
20. Climate change Impacts, Economic, Health, Agriculture

Recommended Texts:

1. Barnes, J., & Dove, M. R. (Eds.). (2015). *Climate cultures: Anthropological perspectives on climate change*. Yale University Press.
2. Marselle, M. R., Stadler, J., Korn, H., Irvine, K. N., & Bonn, A. (2019). *Biodiversity and health in the face of climate change* (p. 481). Springer Nature.

Suggested Readings:

1. Hughes, S., Chu, E. K., & Mason, S. G. (2020). *Climate change and cities*. Oxford. Oxford University Press.
2. Weintrobe, S. (Ed.). (2013). *Engaging with climate change: Psychoanalytic and interdisciplinary perspectives*. Routledge.

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GEOG - 6130	Agricultural Geography	3(3-0)

Course Brief:

Agricultural geography is a sub-discipline of human geography concerned with the spatial relationships found between agriculture and humans. Agricultural Geography provides the basic information of various types of the agriculture on the earth surface viz., Subsistence, commercial, horticulture, specialized etc. Agricultural Geography as a sub-discipline of human and economic geography. The geography of human activities is called as 'economic geography' which examines the primary, secondary, tertiary and quaternary activitie of man. Man in his primeval stage was a hunter and gather and during the Neolithic period he learned the art of cultivation of crops.

Course Learning Objectives:

Agriculture had been the dominant economic activity in the past and it is still the mainstay of over two-third of the world population. The study of agricultural geography is thus of great social relevance among all the branches of human geography

Course Contents:

1. Introduction to agricultural geography:
2. Nature and scope
3. The origins and development of agriculture
4. Theoretical aspects of geographical location relevant to agriculture
5. Introduction; approaches to the study of agriculture in geography
6. Approaches: commodity, regional, deterministic, systematic
7. factors influencing agricultural patterns:
8. Physical factors: the terrain, climate, soil, water resources
9. Socio-economic factors: technological, population, cultural, infrastructure
10. Land, labour and capital
11. Government and regional policies, models in agricultural geography:
12. The nature and need of models
13. Classification of models
14. Models of agricultural activity, agricultural regions: concepts and techniques:
15. Concept and methodology
16. Techniques: normative, empirical, single element, statistical
17. Methods of agricultural regionalization
18. Data classification and distribution

Recommended Texts:

1. Newbury, P. A. R. (1999). *Agricultural geography*. London: Longman.
2. Shukla, L. (2011). *Readings in agricultural geography*. Jaipur: Scientific Publisher.

Suggested Readin :

1. Laingen, C. & L. Butler, H. (2013). *Agricultural geography*. Oxford Bibliographies. Oxford: Oxford University Press. DOI 10.1093/OBO/9780199874002-006
2. Bowler, I. R. (2002) *The industrialization of Agriculture*. Oxford: Oxford University Press.
3. Singh, J. &Dhillon, S. S. (2000). *Agricultural geography*. New Delhi: McGraw-Hill.

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GEOG - 6131	Conservation of Resources	3(3-0)

Course Brief:

Natural resources conservation workers strive to protect natural resources, such as water, soils, minerals, forests and wildlife. Studies in natural resources conservation are multidisciplinary, covering topics in resource management, recreation, development and ecosystems. Conservation includes both the protection and rational use of natural resources.

Course Learning Objectives:

Earth's natural resources are either nonrenewable, such as minerals, oil, gas, and coal, or renewable, such as water, timber, fisheries, and agricultural crops. We need to conserve our Natural Resources because it is the main source of our daily needs. We need to conserve it because they are limited only. And if these resources are abused and harmed, we will have short quantity of sources for food and living. Remember our future generation will need also our Natural Resources.

Course Contents:

1. Scope of the subject; its importance, problems created by the expanding population
2. Advancing technology, increasing standings of living and greater demand for space and goods thereof
3. Relation of subject to other disciplines.
4. Agricultural Resources, Agriculture and man. Types of agriculture, agricultural land use and cropping pattern. Efficiency of agriculture, problems relating to agricultural land. Agricultural regions of the work.
5. Animal Resources: Ranching and pasture, problems of overgrazing, carrying capacity of land, recent changes in ranching brought about by scientific agriculture feedlots and custom feeding, modern range management.
6. Problems of Human Population: Population distribution in different ecosystems, and different societies (with different technical skill), rate of growth of population. Relationship between man, his skills and natural resources. Rural land planning in developed and developing countries. Differences in interpretation of resources. Control of population size, dangers of over population.

Suggested Readings:

1. Bert, R. (2006). *Infrastructure: the social value of shared resources*. New York: Oxford University Press.
2. Dunster, K. (2011). *Dictionary of natural resource management*. Amsterdam: UBC press.

Recommended Texts:

1. Coutts, C. (2016). *Green infrastructure and public health*. London: Routledge.
2. Niles, E. (2003). *Life on earth: An encyclopedia of biodiversity, ecology, and evolution*. California: ABS-CLIO.
3. Burley, J. (2004). *Encyclopedia of forest sciences*. New Delhi: Academic Press.

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GEOL - 5101	Introduction to Geology	3(3-0)

Course Brief:

This course is designed to acquire the knowledge about the basic concepts of geology. This will help the students to get knowledge about various types of rocks, minerals and the processes of their formation. Geology is the core discipline of the earth sciences and encompasses many different phenomena, including plate tectonics and mountain building, volcanoes and earthquakes, and the long-term evolution of Earth's atmosphere, surface and life.

Course Learning Objectives:

The goal of the Geology undergraduate program is to equip students with the fundamental knowledge of the diverse fields of Geology (encompassing Geomorphology & Surface Processes, Hydrology & Low-Temperature Geochemistry, Sedimentology & Paleoecology, and Tectonics and Solid-Earth Processes). In addition, it is critical that students learn to think like a scientist and to apply the scientific method in their coursework and in their lives. It helps to know the geologic time scale and place important geologic events in a temporal framework.

Course Contents:

1. Introduction and scope of geology; importance and relationship with other sciences;
2. History and philosophy of geology; Earth as a member of the solar system;
3. Earth's origin, age, composition and internal structure;
4. Introduction to plate tectonics, Isostasy; mountain building processes;
5. Earthquakes and volcanoes; weathering and erosion;
6. Introduction, identification and classification of rocks and minerals;
7. Sedimentary, igneous and metamorphic structures;
8. Introduction to fossils in sedimentary rocks;
9. Introduction to folds, faults, joints, cleavage, foliation, lineation and unconformities;
10. Geological Time Scale; Law of Superposition, present is key to the past and Law of Faunal Succession;
11. Concept and techniques of geological dating, relative and absolute dating; evolution of life on earth;
12. Use of Brunton Compass and GPS, etc.

Recommended Texts:

1. Plummer, C. C., Carlson, D. H., &Hammersley, L. (2016). *Physical geology*. New York: McGraw- Hill.
2. Plummer, C. C., McGeary, D., & Carlson, D. H. (2000). *Physical Geology: Earth Revealed*. New York: McGraw-Hill.

Suggested Readings:

1. McGeary, D., Carlson, D. H., & Plummer, C. C. (2011). *Physical geology*. New York: McGraw-Hill.
2. Smith, G., & Pun, A. (2013). *How Does Earth Work? Physical Geology and the Process of Science: Pearson New International Edition*. London: Pearson Higher Education.
3. McClay, K. R. (1999). *The mapping of geological structures*. Hoboken: John Wiley & Sons.

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URCM – 5107	Mathematics I	3(3-0)

Course Brief:

The goal of Mathematics lis to prepare students for first-year Calculus. Helping students gain proficiency in their understanding and ability to utilize real-valued functions, the primary tool in Calculus, accomplishes this goal. Students are presented a broad set of 'function tools', including a general understanding of function properties together with a 'library' of commonly used functions.

Course Learning Objectives:

It is intended that students become skilled at recognizing the different families of functions and the primary properties that set each apart, are able to apply the general function properties to each type of function, and are able to use the special set of algebraic skills associated with each. Students are also expected to become adept in utilizing and interpreting the results from graphing calculators, as an important investigative tool.

Course Contents:

1. Preliminaries
2. Real-number system
3. cmplex numbers
4. Introduction to sets, set operations, functions, types of functions.
5. MatricesIntroduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.
6. Quadratic Equations
7. Solution of quadratic equations, qualitative analysis of roots of a quadratic
8. equations
9. Equations reducible to quadratic equations
10. Cube roots of unity, relation between roots and coefficients of quadratic
11. Equations
12. Sequences and Series
13. Arithmetic progression
14. Geometric progression
15. Harmonic progression
16. Binomial Theorem
17. Introduction to mathematical induction
18. Binomial theorem with rational and irrational indices.
19. Trigonometry
20. Fundamentals of trigonometry
21. Trigonometric identities.

Recommended Texts:

1. Thomas, G. B., & Finney, A. R. *(2005). Calculus.* Reading: Addison-Wesley.
2. Anton, H., Bevens. I., & Davis, S. (2005). *Calculus: A new horizon* (8th ed.). New York: John Wiley.

Suggested Readings:

1. Stewart, J. (1995). *Calculus* (3rd ed.).Pacific Grove, California: Brooks/Cole.
2. Swokowski, E. W. (1983). *Calculus and analytic geometry.* Boston: PWS-Kent Company.
3. Thomas, G. B., & Finney, A. R. (2005). *Calculus* (11th ed.).Reading: Addison-Wesley.

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URCM – 5108	Mathematics II	3(3-0)

Course Brief:

Calculus is the mathematical study of continuous change. It has two major branches, differential calculus and integral calculus. Both branches make use of the fundamental notions of convergence of infinite sequences and infinite series to a well-defined limit. Modern calculus is considered to have been developed in 17th century .

Course Learning Objectives:

This course in calculus is a gateway to other, more advanced courses in mathematics devoted to the study of functions and limits, broadly called mathematical analysis. Calculus is used in every branch of the physical sciences, actuarial science, computer science, medicine, demography, and in other fields. It allows one to go from rates of change to the total change or vice versa, and many times in studying a problem we know one and are trying to find the other. This course aims to provide students with the essential concepts of mathematics and how these can be employed for analyzing real data.

Course Contents:

1. Preliminaries
2. Real-number line
3. Functions and their graphs
4. Solution of equations involving absolute values, inequalities.
5. Limits and Continuity
6. Limit of a function
7. Left-hand and right-hand limits
8. Continuity
9. Continuous functions.
10. Derivatives and their Applications
11. Differentiable functions
12. Differentiation of polynomial
13. Rational and transcendental functions, derivatives.
14. Integration and Definite Integrals
15. Techniques of evaluating indefinite integrals
16. Integration by substitution, integration by parts
17. Change of variables in indefinite integrals.

Recommended Texts:

1. Thomas, G. B. & Finney, A. R. *(2005). Calculus.* Reading: Addison-Wesley.
2. Anton, H., Bevens, I., & Davis, S. (2005). *Calculus: A new horizon* (8th ed.). New York: John Wiley.

Suggested Readings:

1. Stewart, J. (1995). *Calculus* (3rd ed.).Pacific Grove, California: Brooks/Cole.
2. Swokowski, E. W. (1983). *Calculus and analytic geometry*. Boston: PWS-Kent Company.
3. Thomas, G. B., & Finney, A. R. (2005). *Calculus* (11th ed.), Reading: Addison-Wesley.

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ENVR – 5104	Environmental Geology	3(3-0)

Course Brief:

This course is designed to acquire the knowledge about the role of geology in the environmental degradation. As a discipline, environmental geology deals with using geological knowledge to address interactions between humans and the physical environment: the biosphere, the lithosphere, the hydrosphere, and, to some degree, the atmosphere. Environmental geology is a multidisciplinary subject that covers a broad range of topics, ranging from Earth materials and their use to Earth processes, including natural hazards and their impact on human lives. The environmental effects of exploring Earth resources is also an integral component of the course.

Course Learning Objectives:

This course will help the students to learn how the various geological processes and related human activities are involved in contaminating our ecosystem. managing geological and hydrogeological resources such as fossil fuels, minerals, water (surface and groundwater), and landuse.Studying the earth's surface through the disciplines of geomorphology, and defining and mitigating exposure of natural hazards on humans managing industrial and domestic waste disposal and minimizing or eliminating effects of pollution, and performing associated activities, often involving litigation.

Course Contents:

1. Introduction to environmental geology.
2. Management of natural resources.
3. Air pollution and global climatic changes.
4. Environmental controls for erosion, desertification and coastal degradation.
5. Geological hazards such as floods, landslides and earthquakes.
6. Volcanoes, glaciers and shoreline processes, their remedial measures.
7. Environmental impact of mining, dams, reservoirs, highways, their assessment and controls.
8. Cleaner sources of energy.
9. Industrial pollution, waste disposal.
10. Groundwater contaminations, River Lake and marine pollution and their impact on human health.
11. Geological aspects of human health.
12. Trace elements and health hazards.

LabWork.

1. Sampling and analysis of air, water, soil and rocks.

Recommended Texts:

1. Keller, E.A., Chales E. (1990). *Environmental geology*. Paris: Merril Publishing Co.
2. Mazore, E. (2000). *Applied Chemical Groundwater Hydrology*. New York: McGraw Hill.

Suggested Reading

1. Merritts, D., De Wet, A., &Menking, K. (2000). *Environmental Geology: an earth system science approach*. New York: Macmillan.
2. Montgomery, C.W. (2005). *Environmental geology*. New York: McGraw Hill.

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CHEM-5101	Physical Chemistry	3 (3-0)

Course Brief:

This course provides foundation and basic level knowledge of physical chemistry to under graduate students. This foundation course covers introduction of physical chemistry along with its application for learning principles of physico-chemical phenomenon. This offer complementary approaches to the fundamental understanding of chemical systems. Students will acquire knowledge to enable themselves to understand the elementary mathematics, physical state of matter, atomic structure, chemical thermodynamics, kinetic theory of gases, collision theory of reactions, fundamental principles and laws of thermodynamics, chemical equilibria and chemical kinetics and investigate the physical properties of ideal/non-ideal binary solutions. Students will also be able to study the rates of reactions and perform related calculations. Students will also be introduced about basics of electrochemistry.

Course Learning Objectives:

The general goal of learning this physical chemistry course is to obtain a vision of matter-energy relationship in physical and chemical systems. Learning objectives emphasized in this course involve developing an understanding of basic principles of physical chemistry.

Course Contents:

1. Elementary Mathematics: Logarithmic, exponential and trigonometric functions
2. Differentiation of elementary functions, Physical States of Mater
3. Atomic Structure, De Brogile equation, Pauli Exclusion Principle, Hund's Rule.
4. Schrodinger wave equation
5. Dipole moment,Chemical Thermodynamics, First and second law of thermodynamics
6. Chemical Equilibrium, Law of Mass Action and LeChaterlier's Principle.
7. Solutions, composition, ideal and non-ideal solutions, Raoult's law.
8. Chemical Kinetics, change of entropy, Zero, first and second order reaction, Arrhenius equation
9. Electrochemistry, Conductance, dependence of conductance
10. Kohlrausch's law and its applications

Recommended Texts:

1. Atkins, P., Paula, J., & Keeler, J. (2017). *Atkins' physical chemistry*. (11th ed.). UK: Oxford University Press.
2. Kuhn, H., Försterling, H., & Waldeck, D.H. (2009). *Principles of physical chemistry*. (2nd ed.). USA: Wiley Publisher.

Suggested Readings:

1. Akhtar, M.N., & Nabi, G. (2006). *Text book of physical chemistry*. Lahore: Ilmi Kitab Khawna.
2. Das, R.C., & Behera, B. (2003). *Experimental physical chemistry*. Delhi: Tata McGraw Hill.

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CHEM-5102	Inorganic Chemistry	3 (3-0)

Course Brief:

This course covers a range of general topics of inorganic chemistry. It will provide a useful supplement to the advanced courses specified in the department. This course aims to enable the students to achieve the advance knowledge about the key introductory concepts of chemical bonding, acid-base chemistry, and properties of the representative and transition elements, as well as using this knowledge for qualitative and quantitative analysis of inorganic compounds during laboratory work. Learning objectives emphasized in CHEM 5102 involve developing an understanding of basic principles of inorganic chemistry.

Course Learning Objectives:

It develop critical thinking skills enabling students to solve chemistry problems that incorporate their cumulative knowledge. Students learned in class to modern chemistry techniques which give them opportunities to upgrade their knowledge about advanced inorganic concepts. The essence of this course is to develop study skills that students need to succeed in university-level chemistry courses and preparation of students for professional positions in chemistry.

Course Contents:

1. Periodic Table and Periodicity of Properties
2. Redox potential, electrochemical series and its applications. Corrosion and electroplating.
3. Acid Base Equilibria: Acids and bases, relative strengths of acids, pH, pKa, pKb.
4. Hard and soft acid and Bases. SHAB Principle and its application.
5. Buffers, types buffer, Preparation, Buffer capacity and applications of buffers.
6. Chemical Bonding, VBT, MOT, VSEPR. Special types of bonds
7. Chemistry of p-Block Elements
8. Production of pure silicon chips for solar energy cells.
9. Chemistry of d-Block Elements Werner's theory, VBT, MOT and CFT
10. Isomerism in coordination compounds.
11. Chelates, Classification and applications
12. Separation Techniques: General introduction and Applications
13. Principle, brief instrumentation(Flame emission, Atomic Absorption, IR and UV/Vis).
14. Metallurgy of Al, Cr and U, fertilizers (Urea and Phosphate fertilizers) Cement and Sugar.

Recommended Texts:

1. Iqbal, M. Z. (2015). *Text book of inorganic chemistry*. Lahore: Ilmi Kitab Khana
2. Lee, J. D. (1996). *Concise inorganic chemistry*. (5th ed.). UK: Chapman and Hall

Suggested Readings:

1. Graham, H., & Man, H. (2000). *Chemistry in context*. (5th ed.). UK: Thomas Nelson Ltd.
2. Philp, M. (1996). Advance chemistry. UK: Cambridge Publishing.

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ECON-5112	Introduction to Economics	3(3-0)

Course Brief:

The course is designed for beginners with either no formal background or very little acquaintance with economics. It develops the ability to explain core economic terms, concepts, and theories. The objective is to give the students a clear understanding of the basic concepts, tools of analysis, and terminologies used in microeconomics and macroeconomics. Emphasis will be on the use of graphs, diagrams, and numerical tables/schedules for exposition. A country's economy consists of three major economic agents; consumers, firms, and government. Analyzing the choices made by these economic agents is one of the main subjects of microeconomics.

Course Learning Objectives:

Students will learn how the decisions made by economic agents are represented in the market as demand and supply of commodities. Students will also learn about the determinants of macroeconomic conditions (national output, employment, and inflation), aggregate supply and demand, business cycles, public finance, international trade, and monetary and fiscal policy. The teacher is expected to draw examples from the surrounding world to clarify the concepts.

Course Contents:

1. Introduction to economics and preliminaries
2. Theory of consumer behavior
3. Demand, Supply, market equilibrium and elasticities
4. Theory of production
5. Revenue and cost analysis of a firm
6. Theory of Market Structure
7. Firm's Behavior under perfect competition, monopoly, and monopolistic competition
8. Introduction to macroeconomics
9. National income and various concepts of national income
10. Consumption and saving function
11. Investment and its types,
12. Concept of aggregate demand and supply and their equilibrium
13. Concept of multiplier and accelerator
14. Monetary and fiscal policies
15. Inflation and unemployment (PHILLIPS CURVE)
16. Balance of payment problems and remedies
17. Public finance and taxation, debt and expenditure

Recommended Texts:

1. Mankiw, N.G. (2018). *Principles of microeconomics*. Boston: Cengage Learning.
2. Diulio, E. A. & Salvatore, D.(2011). *Schaum's outline of principles of economics*. New York: McGraw-Hill Education.

Suggested Readings:

1. Mankiw, N.G.(2019). *Macroeconomics*.New York: Worth Publishers.
2. Nicholson, W. & Snyder, C.M.(2010). *Intermediate microeconomics and its application*.Mason: Cengage Learning.
3. Froyen, R. T.(2013). *Macroeconomics: theories and policies*. University Chapel Hill: Pearson.

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PHYS-5101	Mechanics	3(3-0)

Course Brief:

Mechanics is all about motion of body. It deals with forces, motion, stress, strain and further to the laws of motion in inertial frames specifically. This course also provides the students a broad understanding of the physical principles of the classical dynamics, to describe mechanical events that involve forces acting on macroscopic objects with quantitative skills, to motivate them to think creatively and critically about scientific problems and experiments (thought as well real-life).

Course Learning Objectives:

Student studying this course will understand classical physics and will also develop the skills to apply principles to the practical life problems. Students are encouraged to share their thinking with teachers and the other students to examine different problem-solving strategies.

Course Contents:

1. Measuring things, displacement, average velocity and speed, acceleration, constant acceleration, free fall acceleration, graphical integration in motion analysis
2. Vectors and their components, adding vectors by components, multiplying vectors
3. Unit vector, vector representation of quantities, projectile motion, uniform circular motion
4. Relative motion in one dimension, relative motion in two dimensions
5. Newton's first and second law, some particular forces, applying newton laws, friction
6. Drag force, uniform circular motion, kinetic energy, work and kinetic energy
7. Work done by gravitational force, work done by a spring force
8. Work done by a general variable force, power, potential energy, conservation of energy
9. Conservation of mechanical energy, work done on a system by an external force
10. Conservation of energy, center of mass, newton's second law for system of particles
11. Linear momentum, collision and impulse, momentum and kinetic energy in collision
12. Elastic collision in one dimension, collisions in one/two dimensions
13. Conservation of linear momentum and system with varying mass
14. Modulus of rigidity by static & dynamic method (maxwell's needle, barton's apparatus)
15. To determine the value of "g" by compound pendulum/kater's pendulum
16. To study the conservation of energy (hook's law)
17. To determine elastic constants by spiral springs
18. To study the laws of vibration of stretched string using sonometer
19. Modulus of rigidity by static & dynamic method (maxwell's needle, barton's apparatus)

Recommended Texts:

1. Halliday, D., Resnick, R. & Walker, J. (2014). *Fundamentals of physics* (10th ed.). New York: Wiley.
2. Halliday, D., Resnick, R. & Krane, K. S. (2003). *Physics* (5th ed.). New York: Wiley.

Suggested Readings:

1. Young, H. D., Freedman, R. A. & Ford, A. L. (2019). *University physics* (15th ed.). New York: Pearson.
2. Serway, R. A. & Jewett, J. W. (2014). Physics for scientist and engineers (9th ed.). New York: Brooks/Cole.
3. Melissinos, A.C. (2008). *Experiments in modern physics.* New York: Academic press.

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PSYC-5101	Introduction to Psychology	3 (3-0)

Course Brief:

This course has been designed to ensure an effective orientation of students towards the discipline of psychology so that they may come to appreciate the diversity of the subject and its pragmatic significance. This course provides anintroduction to the concepts and theories of psychology and to their application to real life situations. Main objectives of the course include to make students familiar with the essentials features of human personality; to inculcate a sense of personal relevance of Psychology as a subject with the potential of gaining better insight into one's own self and others.

Course Learning Objectives

Successful completion of course students will have an introductory knowledge of selected areas of basic psychological enquiry and they will be able to: differentiate between scientific and non-scientific information about human behaviors and mental processes, describe major developments and research methods used in psychology; Explain psychological processes involved in sensation, perception, learning, memory, motivation, emotion, states of consciousness and health; Analyze the variety of factors affecting sensation, perception, consciousness, learning, memory, motivation, emotion, and health; and can apply psychological concepts and principles to situations in everyday life.

Course Contents:

1. Introduction to Psychology: Definition of psychology, Goals of psychology, Major schools of thought in psychology, Major fields of psychology
2. Basic research Methods in Psychology: Survey research, Experimental research, Case study method
3. Biological Basis of Behavior: Brain and nervous system, Structure and function of major brain areas, Neurotransmitters and their functions
4. Sensation and Perception: Difference between sensation and perception, Principles of perception, Role of perception in human cognition
5. Motivation and Emotion: Concept &Theories of motivation and emotion
6. Learning: Definition of Learning, Types of Learning (i) Classical Conditioning (ii) Operant Conditioning, (iii) Observational Learning
7. Memory and Intelligence: Definition and stages of human memory, Types of memory, Concept of intelligence, Basic theories of intelligence

Recommended Texts:

1. Weiten,W. (2017). *Psychology: Themes and variations*. Boston: Cengage Learning.
2. Nolen-Hoeksema, S., &Hilgard, E. R. (2015).*Atkinson and Hilgard's introduction to psychology*(16th ed.).New Dehli: Cengage Learning.

Suggested Readings:

1. Flanagan, C., Berry, D., Jarvis, M., &Liddle, R. (2015). *AQA psychology*.London: Illuminate Publishing - Cheltenham.
2. Coon, D., Mitterer, J. O., & Martini, T. S. (2018*). Introduction to psychology: Gateways to mind and behavior*. Boston: Cengage Learning.

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SOCI-5101	General Sociology-I	3 (3-0)

Course Brief:

Sociology is the study of society, patterns of social relationships, social interaction, and culture that surrounds everyday life It is a social science that uses various methods of empirical investigation and critical analysis to develop a body of knowledge about social order and social change. Subject matter can range from micro-level analyses of society to macro-level analyses .The course is designed to introduce the students with basic sociological concepts and to get familiarity with the overall discipline.

Course Learning Objectives:

The focus of the course shall be on basic concepts like scope and significance of Sociology, How Sociology is related as well as distinct from other social sciences. It focuses on the constituent parts of the society i.e. social systems and structures, socio-economic changes and social processes. This will also give an understanding of the Culture, elements of culture and the relationship of culture and personalities. The course will provide due foundation for further studies in the field of sociology.

Course Contents:

1 Introduction to Sociology: The Science of Society, Scope and significance
2 Fields of Sociology: Sociology and other Social Sciences
3 Social interaction and social structure: The Nature and Basis of Social Interaction
4 Social Processes: Social structure Status, Roles, Power and Authority, Role Allocation
5 Culture: Meaning and nature of culture, Elements of culture: Norms, values beliefs, sanctions
6 Culture and Socialization, Transmission of Culture, Cultural Lag, Cultural Variation
7 Cultural Integration, Cultural Evolution, Cultural Pluralism, Culture and personality
8 Socialization & personality: Socialization, Agents of socialization
9 Personality: components of personality
10 Deviance and social control: Deviance and conformity
11 Mechanism and techniques of social control, Agencies of social control
12 Social organization: Definition, meaning and forms, Social groups; Functions of groups
13 Social Institutions: forms, nature and inter-relationship
14 Community: definition and forms (Urban and rural).
15 Social Institutions: Structure and functions of Institutions
16 Family, Religion, Education, Economy and political institution

Recommended Texts:

1 Giddens, A., & Sutton, P. W. (2018). *Sociology* (11th ed). Cambridge: Polity Press.
2 Macionis, J. J. (2016). *Sociology*.New Jersey: Prentice-Hall

Suggested Readings:

1 Andersen, M., & Taylor, H. (2012). *Sociology: the essentials*. Toronto: Nelson Education.
2 Richard, T. S. (2012). *Sociology*. New York. McGraw Hill.
3 Henslin, J. M. (2011). *Sociology: A Down to Earth Approach, Census Update*. Upper Saddle River: Prentice Hall.

STAT-5121	Introduction to Statistics	3(3-0)

Course Brief:

This course is designed for under-graduate level. Statistical analysis is a basic requirement in order toanalyze the phenomenon related to all sectors.

Course Learning Objectives:

This course aims to produce skills related to descriptiveas well as inferential statistical analysis. Use of descriptive, inferential, regression, sampling statisticshas vital importance to analyze and decision making theories related to agriculture, economics andbusiness statistics etc.

Course Contents:

1. Introduction to Statistics: Descriptive and Inferential Statistics.
2. Limitations of Statistics
3. Scope of Statistics
4. Variable, Data, Types of Variable and Data, Scales of Measurements.
5. Display of Data: Tabulation of Data, Graphical Display, Histogram, Bar Charts, Pie Chart.
6. Stem and Leaf Plots.
7. Measures of Central Tendency: Mean Median, Mode, Box Plot, and Application in Real Life.
8. Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Variance and Standard
9. Deviation, Coefficient of Variation, Z-score and their Application.
10. Normal Distribution: Normal Distribution and its Application,
11. Sampling and Sampling Distribution.
12. Estimation:
13. Hypothesis Testing
14. Regression and Regression Analysis: Simple Linear Regression, Multiple Regression, Fitness
15. Model.
16. All the observational analysis will be carried out using MS Excel and SPSS.

Recommended Texts:

1. Chaudhry, S.M. &Kamal,S.(2010). *Introduction to statistical theory*. (Parts I &II). Lahore: IlmiKitabKhana.
2. Walpole,R.E.,Mysters,R.H. & Myers,S.L.(1998). *Probability and statistics for engineers andscientists*. New York: Prentice Hall.

Suggested Readings:

1. Mclave, J.T., Benson, P.G.& Snitch.(2005).*Statistics for business & economics*.New Jersey: Prentice Hall.
2. Spiegel, M.R., Schiller, J.L. &Sirinivasan, R.L. (2000) *Probability and statistics*. New York: McGraw Hill
3. Clark, G. M.,& Cooke, D. (1998). *Basic course in statistics*. London: Arnold.

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ULAW-5130	Introduction to Basic Laws	3(3-0)

Course Brief:

This course is designed to educate the students at large, the law, rules, regulations related to daily life. Students should behave and ensure order, predictability and security in some basic fields of life. This course is designed to aware the basic rights and obligations to make the civic.

Course Learning Objectives:

This course will develop basic necessary knowledge, skills and attitude for legal awareness among the students. to enlighten the basic principles and rules regarding basic Fundamental rights of citizens as give by The Constitution of Islamic Republic of Pakistan, Human Rights Laws, Consumer Protection Laws, Environmental Laws and Women Protection Laws in order to gain insight into law and legal system. It will provide basic acquaintance to legal principles and will advance the social justice. Moreover, it will impart light on corners of life that will make the student more vibrant, civilized and law abiding citizens.

Course Contents:

1. The Constitution of Islamic Republic of Pakistan, 1973
2. Fundamental Rights Article 8 to 28
3. Framework for implementation of Fundamental Rights under Article 184 and 199
4. European Convention on Human Rights
5. Universal Declaration of Human Rights 1948
6. Theory and practice of Human Rights in Pakistan
7. The Punjab Consumer Protection Act, 2005
8. The Punjab Consumer Protection Rules, 2009
9. Environmental Laws
10. The Pakistan Environmental Protection Act, 1997
11. The Punjab Environmental Protection Act, 1997
12. Women Protection Laws The Women Protection Act, 2006
13. The Protection Against Harassment of Women at Workplace Act, 2010

Recommended Texts:

1. Emanuel, S. L. (2019). *Constitutional law*. New York: Wolters Kluwer.
2. Adil, Z. H. (2014). *The manual of consumer protection laws in Pakistan*. Lahore: Kashif Law Book House.

Suggested Readings:

1. Brownlie, I., & Goodwin-Gill, G. S. (Eds.). (2010). *Brownlie's documents on human rights*. London: Oxford University Press.
2. Salzman, J., & Thompson, B. H. (2003). *Environmental law and policy*. NewYork: Foundation Press.
3. *The Protection Against Harassment of Women at Workplace Act,2010* (As amended up to date)

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INTR-5101	Introduction to International Relations	3(3-0)

Course Brief:

The study and practice of international relations is interdisciplinary in nature, blending the fields of economics, history, and political science to examine the topics such as human rights, global poverty, the environment, economics, globalization, security, global ethics, and the political environment. Historically, the establishment of treaties between nations served as the earliest form of international relations. International relations allows nations to cooperate with one another, pool resources, and share information as a way to face global issues that go beyond any particular country or region.

Course Learning Objectives:

This course provides a comprehensive introduction to international relations, focusing in particular on its origins and historical evolution, its key concepts, major theoretical frameworks, main actors and institutions, the global architecture of power, and its dynamic nature in the process of globalization. More specifically, this course introduces concepts of power, statecraft, diplomacy, foreign policy, political economy and international security, and examines the evolution of international relations as a subject.

Course Contents:

1. IR as an Academic Field
2. Realism, Liberalism, Marxism, Social Constructivism
3. Relevance to Current Issues
4. US, Russia and Rise of China
5. Development of the International System
6. History of state development (City State to Empires)
7. Westphalia and Emergence of State system
8. Industrial Revolution and French Revolution
9. World War I & World War II
10. Cold War and Post-Cold War
11. States and Other Actors
12. Sovereignty and Nationalism
13. States, IGOs, TNAs
14. Globalization
15. Foreign Policy
16. Diplomacy
17. International Institutions, United Nations, Security Council, General Assembly
18. UN Agencies, World Bank / IMF
19. Regional organizations: NATO, ASEAN and SAARC etc.

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Recommended Texts:

1. Devetak, R., George, J., & Percy, S. (2017). *An iintroductionto iinternationalrelations*. Cambridge: Cambridge University Press.
2. Baylis, J., Smith, S., & Owens, P. (2004). *The globalization of world politics*.London: Oxford University Press.

Suggested Readings:

1. Jackson, R. and Sorensen, G.(2016). *Introduction to internationalrelations*. London: Oxford University Press.
2. Carlsnaes, W., Carlsnaes, W., Risse-Kappen, T., & Simmons, B. (2013). *Handbook of international relations*. London: SAGE Publications.

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POLS-5101	Introduction to Political Science	3 (3-0)

Course Brief:

This course offers the student a comprehensive introduction to polities, political institutions and issues. The course has four main objectives for the student to: understand what is meant by politics, explore competing concepts and approaches, learn about how political institutions and processes work, and discuss contemporary political issues in an informed manner. While highlighting the main objectives of national life, the course explains further the socio-economic, political and cultural aspects of Pakistan's endeavours to develop and progress in the contemporary world.

Course Learning Objectives:

This course will be very helpful to expand the understandings of the reader pertaining to the existed contemporary knowledge of the world and to excel his personal capabilities to serve for others. It enhances the skill of students to underpin the understanding about political process, its valuable outcome and how to unleash socio-political activities in our surroundings. It enables the students to understand the political realities about polity.

Course Contents:

1. Definition, Nature, Scope and Relations with Other Social Sciences
2. State; Definitions, Elements, Functions, Difference Between State and Society
3. Types of Power
4. Debates in the Study of Power
5. States: State Formation, Development, and Change
6. States and Nations: Relations and Interactions
7. Constitution: The Highest Law of the Land
8. Approaches to Executive leadership
9. Government;
10. Government Functions
11. Kinds of Governments
12. Presidential and Parliamentary Systems
13. Legislatures: Features, Functions, and Structure
14. Judicial Institutions: Structure and Design
15. Agents of Political Socialization
16. Functions of Political Parties
17. Bureaucracy and Democracy
18. Electoral Systems:
19. Single-Member Districts
20. Proportional Representation

Recommended Texts:

1. Grigsby, E. (2008). *Analyzing politics*. Boston: Cengage Learning.
2. Roskin, M. G., Cord, R. L., Medeiros, J. A., & Jones, W. S. (2016). *Political science: An introduction*. New York: Pearson.

Suggested Readings:

1. Brodie, J., Rein, S., & Smith, M. S. (2013). *Critical concepts: An introduction to politics*. New York: Pearson.
2. Kesselman, M., Krieger, J., & Joseph, W. A. (2018). *Introduction to comparative politics:*
3. *Political challenges and changing agendas*. Boston: Cengage Learning.