UNIVERSITY OF SARGODHA

Office of the Registrar

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Notification

The Academic Council in its meeting held on 18.06.2020 has approved the following recommendations made by the Board of Faculty of Sciences in its meeting held on 03.06.2020. The Syndicate in its meeting held on 27.7.2020 has also endorsed the decision of Academic Council:

1. Revised scheme of studies of BS Geology under Semester / Term System from session 2019 (Annex-'A')
2. Revised scheme of studies of MS Geology under Semester / Term System from session 2019 (Annex-'B')
3. Revised scheme of studies of BS Geography under Semester / Term System from session 2019 (Annex-'C')
4. Revised scheme of studies of MS/MPhil Geography under Semester / Term System from session 2020 (Annex-'D')
5. Revised scheme of studies of M.Sc Geography under Semester / Term System from session 2019 (Annex-'E')

Muhammad Farooq
Deputy Registrar (Acad)
10/11/2020

For information!
11/11/2020

Distribution

- Chairman, Department of Earth Sciences
- Director, Sub-Campus Bhakkar
- Controller of Examinations
- Principals of all affiliated colleges (concerned)
- Web-Developer *(for uploading on university web-site)*

C.C:

- Focal Person, Faculty of Sciences
- Deputy Registrar (Affiliation)
- Deputy Registrar (Registration)
- Secretary to the Vice-Chancellor
- P.A to Registrar

11/11/2020

DCA(S)

DCE(SS)

92-48-3740367-111 registrar@uos.edu.pk www.uos.edu.pk University of Sargodha, University Road, Sargodha Punjab 40100 Pakistan

REVISED SCHEME OF STUDIES & CURRICULUM
BS GEOGRAPHY
(Semester / Term System)
(2019)

DEPARTMENT OF EARTH SCIENCES
UNIVERSITY OF SARGODHA
SARGODHA

Revised Scheme of Studies for BS Geography Programmew.e.f. Fall 2019

Total credit hours: 130

Year 1

Semester I

Course code	Course Title	Cr.Hrs	Course code	Course Title	Cr. Hrs
GEOG-5101	Fundamentals of Geography	3(3+0)	GEOG-5102	Physical Geography	3(3+0)
URCE-5101	Grammar	3(3+0)	URCE-5102	Language Comprehension & Presentation Skills	3(3+0)
URCI-5105	Islamic Studies	2(2+0)	URCP-5106	Pakistan Studies	2(2+0)
URCM-5107	Mathematics I	3(3+0)	*ULAW-5130	Introduction to Basic Laws	3(3+0)
*GEOL-5101	Introduction to Geology	3(3+0)	*ENVR-5104	Environmental Geology	3(3+0)
*ENVR-5101	Introduction to Environmental Sciences	3(3+0)	*INTR-5101	Introduction to International Relation	3(3+0)
	TOTAL	17		TOTAL	17

Year 2

Semester III

Semester IV

Course code	Course Title	Cr. Hrs.	Course code	Course Title	Cr. Hrs.
GEOG-5103	Human Geography	3(3+0)	GEOG-5105	History and Development of Geographic Thought	3(3+0)
URCE-5103	Academic Writing	3(3+0)	GEOG-5106	Surveying	3(1+2)
GEOG-5104	Map Work	3(2+1)	URCE-5104	Introduction to English Literature	3(3+0)
URCS-5108	Introduction to Statistics	3(3+0)	*PSYC-5101	Introduction to Psychology	3(3+0)
*SOCIO-5101	General Sociology	3(3+0)	*ECON-5112	Introduction to Economics	3(3+0)
URCI-5109	Introduction to Information & Communication Technologies	3(3+0)			
	TOTAL	18		TOTAL	15

*as notified by the Chairman from list A

Year 3

Semester V

Course code	Course Title	Cr.Hrs
GEOG-6107	Regional Concepts	3(3+0)
GEOG-6108	Geomorphology	3(3+0)
GEOG-6109	Climatology	3(3+0)
GEOG-6110	Economic Geography	3(3+0)
GEOG-6111	Quantitative Methods In Geography	3(3+0)
GEOG-6112	Principles of Cartography	3(1+2)
Total		18

Semester VI

Course code	Course Title	Cr.Hrs.
GEOG-6113	Oceanography	3(3+0)
GEOG-6114	Remote Sensing	3(2+1)
GEOG-6115	Research Methods	3(3+0)
GEOG-6116	Population Geography	3(3+0)
GEOG-6117	Geographical Information System	3(2+1)
Total		15

Year 4

Semester VII

Course code	Course Title	Cr. Hrs.
GEOG-6118	Environmental Geography	3(3+0)
GEOG-6119	Urban Geography	3(3+0)
GEOG- 6120	Digital Image Processing	3(2+1)
***GEOG--61-	Regional Geography	3(3+0)
**GEOG-61--	Elective Course	3(3+0)
TOTAL		15

Semester VIII

Course code	Course Title	Cr.Hrs
GEOG-6121	Geography of Pakistan	3(3+0)
**GEOG-61--	Elective course	3(3+0)
**GEOG-61---	Elective Course	3(3+0)
****GEOG-61--	Field Survey	6(0+6)
GEOG-6190	Thesis (in lieu of two optional papers)	6(0+6)
TOTAL		15

**as notified by the Chairman from list B.
***as notified by the Chairman from list C.
****as notified by the Chairman from list D.

List A: **Elective Papers:-**

- GEOL-5101 Introduction to Geology
- ENVR- 5101 Introduction to Environmental Sciences
- 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

List B: **Optional Papers:-**

- 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 Settlement Geography
- GEOG-6130Tourism Geography
- GEOG-6131 Transportation Geography
- GEOG-6132 Soil Geography
- GEOG-6133 Meteorology
- GEOG -6134 Climate Change Studies
- GEOG- 6135 Social Geography
- GEOG-6136 Geography of Migration and Regional Development
- GEOG-6137 Behavioural Geography
- GEOG- 6138Historical Geography
- GEOG-6139 Geography of Religions
- GEOG-6140 Geography of Crimes
- GEOG-6141 Gender Geography
- GEOG-6142 Geography of Marketing
- GEOG-6143 Industrial Geography
- GEOG-6144 Urban and rural land use Studies
- GEOG-6145 Regional Planning and Development
- GEOG- 6146 Geography of Housing
- GEOG-6147 Geography of Health Care
- GEOG-6148 Geography of Nutrition
- GEOG-6149 Military Geography
- GEOG-6150 Geography of Administration
- GEOG -6151 Geo-Archaeology

- GEOG-6152 Geography of prehistoric cultures & Civilizations
- GEOG-6153 Environmental perceptions in Geography
- GEOG-6154 Quantitative Geography
- GEOG-6155 Geography of Natural Hazards and Disasters
- GEOG-6156 Applied Geomorphology
- GEOG-6157 Development Planning
- GEOG-6158 Sustainable Development of Natural Resource
- GEOG-6159 Applied Cartography
- GEOG-6160 Social Impact Assessment (SIA)
- GEOG-6161 Mountain Geography
- GEOG-6162 Geography of Retailing
- GEOG-6163 Urban Environmental Planning &Management
- GEOG-6164 Geography of Wetlands
- GEOG-6165 Urban Planning
- GEOG-6166 Urban and Landscape Ecology
- GEOG-6167 Agricultural Geography
- GEOG-6168 Conservation of Resources
- GEOG-6169Environmental Impact Assessment (EIA)

List C:Regional Geography:-

- GEOG-6170 South Asia
- GEOG-6171 Australia
- GEOG-6172 Central Asia
- GEOG-6173 Eastern Asia China, Japan & Korea
- GEOG-6174 Europe
- GEOG-6175Geography of the Muslim World
- GEOG-6176 North America
- GEOG-6177 S. West Asia
- GEOG-6178 South America
- GEOG-6179 South East Asia

List D. Field Survey Report

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 write report on it.

GEOG-6190: Thesis

(In lieu of two optional papers in semester VIII)

GEOG- 5101 Fundamentals of Geography 3(3+0)

This course is graduate-level course to expose students with the founding principles of Geography and geographical knowledge. A systematic descriptive introduction to the diverse elements of landscape including geomorphic, climatic, and biotic elements, human settlement and land-use patterns; cartographic approaches to the analysis of selected processes of landscape change. This course provides an opportunity for understanding part of the complex physical and biological environment in which human beings live.The nature and processes of geo-system and its constituent parts: atmosphere, lithosphere, hydrosphere and biosphere; structure and composition of the atmosphere: atmospheric circulation, weather and climate, energy transmission, spatial variation of energy inputs and energy budget; structure and composition of the earth: tectonics and related processes; hydrological cycle and its components: precipitation, evapotranspiration, groundwater, surface water and the oceans; vegetation zones of the world: world soils, ecosystems, biomes, energy and matter flows.

Contents

1. Introduction, Definitions, scope and branches of Geography
2. Roots of the discipline and basic geographic concepts
3. Themes and traditions of Geography
4. Tools of Geography, The Universe, Galaxies and solar system
5. The Earth as a planet, Celestial positions, its shape and size
6. Rotation, revolution and related phenomena
7. Spheres of the earth, Lithosphere, Atmosphere, Hydrosphere
8. Biosphere
9. Man-environment interaction
10. Population
11. Major Economic activities
12. Settlements
13. Pollution

Lab. Work

1. Comprehension of atlases
2. Map reading skills, location of places
3. Features and relevant work related to topics of the theoretical section.

Recommended Texts

1. Arbogast, A. F. (2007). *Discovering physical geography*. London: John Wiley and Sons.
2. Christopherson, R. W. (2009). *Geo systems: an introduction to physical geography*. New Jersey: Pearson Prentice Hall.

Suggested Readings

1. De Blij, H. J and Muller. P. O. (1996). *Physical geography of the global environment*. London: John Wiley and Sons.
2. Strahler, A. (2013). *Introduction to physical geography*. New Jersey: John Wiley & Sons.
3. Seamon, D. (2015). *A geography of the lifeworld: Movement, Rest and Encounter*. London: Routledge.

URCM – 5107 **Mathematics I** **3(3+0)**

The goal of Mathematics I is 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. 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.

Contents

1. Preliminaries
2. Real-number system
3. complex 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.

URCE-5101 **Grammar** **3(3+0)**

The course introduces the students to the underlying rules to acquire and use language in academic context. The course aims at developing grammatical competence of the learners to use grammatical structures in context in order to make the experience of learning English more meaningful enabling the students to meet their real life communication needs. The objectives of the course are to, reinforce the basics of grammar, understand the basic meaningful units of language, and introduce the functional aspects of grammatical categories and to comprehend language use by practically working on the grammatical aspects of language in academic settings. After studying the course, students would be able to use the language efficiently in academic and real life situations and integrate the basic language skills in speaking and writing. The students would be able to work in a competitive environment at higher education level to cater with the long term learners' needs.

Contents

1. Parts of speech
2. Noun and its types
3. Pronoun and its types
4. Adjective and its types
5. Verb and its types
6. Adverb and its types
7. Prepositions and its types
8. Conjunction and its types
9. Phrases and its different types
10. Clauses and its different types
11. Sentence, parts of sentence and types of sentence
12. Synthesis of sentence
13. Conditional sentences
14. Voices
15. Narration
16. Punctuation
17. Common grammatical errors and their corrections

Recommended Texts

1. Eastwood, J. (2011). *A basic English grammar*. Oxford: Oxford University Press.
2. Swan, M. (2018). *Practical English usage* (8th ed.). Oxford: Oxford University Press.

Suggested Readings

1. Thomson, A. J., & Martinet, A. V. (1986). *A practical English grammar*. Oxford: Oxford University Press
2. Biber, D., Johansson, S., Leech, G., Conrad, S., Finegan, E., & Quirk, R. (1999). *Longman grammar of spoken and written English*. Harlow Essex: MIT Press.
3. Hunston, S., & Francis, G. (2000). *Pattern grammar: A corpus-driven approach to the lexicalgrammar of English*. Amsterdam: John Benjamins.

URCI-5105 **Islamic Studies** **2(2+0)**

Islamic Studies engages in the study of Islam as a textual tradition inscribed in the fundamental sources of Islam; Qur'an and Hadith, history and particular cultural contexts. The area seeks to provide an introduction to and a specialization in Islam through a large variety of expressions (literary, poetic, social, and political) and through a variety of methods (literary criticism, hermeneutics, history, sociology, and anthropology). It offers opportunities to get fully introductory foundational bases of Islam in fields that include Qur'anic studies, Hadith and Seerah of Prophet Muhammad (PBUH), Islamic philosophy, and Islamic law, culture and theology through the textual study of Qur'an and Sunnah.Islamic Studies is the academic study of Islam and Islamic culture. It majorly comprises of the importance of life and that after death. It is one of the best systems of education, which makes an ethical groomed person with the qualities which he/she should have as a human being. The basic sources of the Islamic Studies are the Holy Qur'an and Sunnah or Hadith of the Holy Prophet Muhammad ﷺ. The learning of the Qur'an and Sunnah guides the Muslims to live peacefully.

Contents

1. Study of the Qur'an (Introduction to the Qur'an, Selected verses from *Surah Al-Baqarah, Al-Furqan, Al-Ahzab, Al-Mu'minoon, Al-An'am, Al-Hujurat, Al-Saff*)
2. Study of the Hadith (Introduction to Hadith literature, Selected Ahadith (Text and Translation)
3. Introduction to Qur'anic Studies
4. Basic Concepts of Qur'an
5. History of Quran
6. Basic Concepts of Hadith
7. History of Hadith
8. Kinds of Hadith
9. Uloom –ul-Hadith
10. Sunnah& Hadith
11. Seeratul-Nabi (PBUH), necessity and importance of Seerat, role of Seerah in the development of personality, Pact of Madinah, KhutbahHajjat al-Wada' and ethical teachings of Prophet (PBUH).
12. Legal Position of Sunnah
13. Islamic Culture & Civilization
14. Characteristics of Islamic Culture & Civilization
15. Historical Development of Islamic Culture & Civilization
16. Comparative Religions and Contemporary Issues
17. Impact of Islamic civilization

Recommend Texts

1. Hassan, A. (1990). *Principles of Islamic jurisprudence*. New Dehli: Adam Publishers.
2. Zia-ul-Haq, M. (2001). *Introduction to al-Sharia al-Islamia*. Lahore: Aziz Publication.

Suggested Readings

1. Hameedullah, M. (1957). *Introduction to Islam*. Lahore: Sh M Ashraf Publisher.
2. Hameedullah, M. (1980). *Emergence of Islam*. New Dehli: Adam Publishers.
3. Hameedullah, M. (1942). *Muslim conduct of state*. Lahore: Sh M Ashraf Publisher.

GEOL –5101 Introduction to Geology 3(3+0)

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. 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. Identify and interpret common fossils, common rock-forming minerals and rock-forming processes, Interpret environments of deposition of sedimentary rocks, Identify common rocks and interpret them with respect to tectonics.

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, (2012).*Physical geology*. (12th Ed.). New York: McGraw-Hill.

Suggested Readings

1. Smith, G., & Pun, A. (2013). *How does earth work? physical geology and the process of Science*. London: Pearson.
2. McClay, K. R. (2013). *The mapping of geological structures*. Hoboken: John Wiley & Sons.

ENVR -5101 Introduction to Environmental Sciences 3(3+0)

This course is designed to acquire the knowledge about the role of the environmental science in our daily life. This will help the students to learn how the various environmental processes and related human activities are involved in contaminating our ecosystem. Acquire an awareness of the environment as a whole and its related problems. Gain a variety of experiences and acquire a basic understanding and knowledge about the environment and its allied problems. Acquire an attitude of concern for the environment. Acquire the skills for identifying and solving environmental problems. Participate in improvement and protection of environment. Develop the ability to evaluate measures for the improvement and protection of environment. Environmental studies are to develop a world in which persons are aware of and concerned about environment and the problems associated with it, and committed to work individually as well as collectively towards solutions of current problems and prevention of future problems.

Contents

1. Basic concepts like Introduction, History and Nature.
2. Scope of Environmental Science and its contribution to society.
3. Principles of natural resources.
4. Different aspects of environment: Physical, Ecological, Socio-Economic, Ethical
5. Global warming and Greenhouse effect.
6. Impact of acidic rain on an environment.
7. Major components of environment: Physico-Chemical, Biological and Social,
8. Relationships with various environmental factors.
9. Human environment and its problems: Global, National.
10. Human environment and its Regional.
11. Environmental challenges: Current and Future trends in population growth.
12. Environmental challenges for sustainable development
13. Urbanization, Poverty and Resource depletion.
14. Environmental Pollution, Development in industry and agriculture.

Recommended Texts

1. Botkin, D. B & Keller, E.A, (2007). *Environmental science: earth as a living planet.* Hoboken: John Wiley & Sons.
2. McKinney, M. L., Schoch, R.M. & Yonavjak, L. (2007). *Environmental Science: systems and solutions*. Burlington: Jones & Bartlett Publishers.

Suggested Readings

1. Wright, R.T. & Nebel, B.J, (2007). *Environmental science: toward a sustainable future*. London: Pearson Educational.
2. Miller, G., Thomson, L. (2002). *Environmental science: working with the earth.* Hoboken: John Wiley & Sons.

GEOG - 5102 **Physical Geography** **3(3+0)**

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. Throughout the course, students look at patterns of human activity 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.

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.

URCE-5102 Language Comprehension & Presentation Skills 3(3+0)

The course aims at developing linguistic competence by focusing on basic language skills in integration to make the use of language in context. It also aims at developing students' skills in reading and reading comprehension of written texts in various contexts. The course also provides assistance in developing students' vocabulary building skills as well as their critical thinking skills. The contents of the course are designed on the basis of these language skills: listening skills, pronunciation skills, comprehension skills and presentation skills. The course provides practice in accurate pronunciation, stress and intonation patterns and critical listening skills for different contexts. The students require a grasp of English language to comprehend texts as organic whole, to interact with reasonable ease in structured situations, and to comprehend and construct academic discourse. The course objectives are to enhance students' language skill management capacity, to comprehend text(s) in context, to respond to language in context, and to write structured response(s).

Contents

1 Listening skills
2 Listening to isolated sentences and speech extracts
3 Managing listening and overcoming barriers to listening
4 Expressing opinions (debating current events) and oral synthesis of thoughts and ideas
5 Pronunciation skills
6 Recognizing phonemes, phonemic symbols and syllables, pronouncing words correctly
7 Understanding and practicing stress patterns and intonation patterns in simple sentences
8 Comprehension skills
9 Reading strategies, summarizing, sequencing, inferencing, comparing and contrasting
10 Drawing conclusions, self-questioning, problem-solving, relating background knowledge
11 Distinguishing between fact and opinion, finding the main idea, and supporting details
12 Text organizational patterns, investigating implied ideas, purpose and tone of the text
13 Critical reading, SQ3R method
14 Presentation skills, features of good presentations, different types of presentations
15 Different patterns of introducing a presentation, organizing arguments in a presentation
16 Tactics of maintaining interest of the audience, dealing with the questions of audience
17 Concluding a presentation, giving suggestions and recommendations

Recommended Texts

1 Mikulecky, B. S., & Jeffries, L. (2007). *Advanced reading power: Extensive reading, vocabulary building, comprehension skills, reading faster*. New York: Pearson.
2 Helgesen, M., & Brown, S. (2004). *Active listening: Building skills for understanding*. Cambridge: Cambridge University Press.

Suggested Readings

1 Roach, C. A., & Wyatt, N. (1988). *Successful listening*. New York: Harper & Row.
2 Horowitz, R., & Samuels, S. J. (1987). *Comprehending oral and written language*. San Diego: Academic Press.

URCP-5106 **Pakistan Studies** **2(2+0)**

The course is designed to acquaint the students of BS Programs with the rationale of the creation of Pakistan. The students would be apprised of the emergence, growth and development of Muslim nationalism in South Asia and the struggle for freedom, which eventually led to the establishment of Pakistan. 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. For this purpose, the foreign policy objectives and Pakistan's foreign relations with neighbouring and other countries are also included. This curriculum has been developed to help students analyse the socio-political problems of Pakistan while highlighting various phases of its history before and after the partition and to develop a vision in them to become knowledgeable citizens of their homeland.

Contents

1. Contextualizing Pakistan Studies
2. Geography of Pakistan: Geo-Strategic Importance of Pakistan
3. Freedom Movement (1857-1947)
4. Pakistan Movement (1940-47)
5. Muslim Nationalism in South Asia
6. Two Nations Theory
7. Ideology of Pakistan
8. Initial Problems of Pakistan
9. Political and Constitutional Developments in Pakistan
10. Economy of Pakistan: Problems and Prospects
11. Society and Culture of Pakistan
12. Foreign Policy Objectives of Pakistan and Diplomatic Relations
13. Current and Contemporary Issues of Pakistan
14. Human Rights: Issues of Human Rights in Pakistan

Recommended Texts

1. Kazimi, M. R. (2007). *Pakistan studies*. Karachi: Oxford University Press.
2. Sheikh, J. A. (2004). *Pakistan's political economic and diplomatic dynamics*. Lahore: Kitabistan Paper Products.

Suggested Readings

1. Hayat, S. (2016). *Aspects of Pakistan movement*. Islamabad: National Institute of Historical and Cultural Research.
2. Kazimi, M. R. (2009). *A concise history of Pakistan*. Karachi: Oxford University Press.
3. Talbot, Ian (1998). *Pakistan: a modern history*. London: Hurst and Company.

ULAW-513(**Introduction to Basic Laws** **3(3+0)**

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. 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.

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). *Brownile's documents on human rights*. London: Oxford University Press.
2. Salzman, J., & Thompson, B. H. (2003). *Environmental law and policy*. New York: Foundation Press.
3. *The Protection Against Harassment of Women at Workplace Act,2010* (As amended up to date)

ENVR – 5104 **Environmental Geology** **3(3+0)**

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. This 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 ground_water), and land_use. 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.

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.

Lab. Work

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 Readings

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.
3. Armanel, N.A., & Polyakove, V.M. (2005). *Radio propagation and remote sensing of the environment*. London: CRC Press.

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

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.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 spe.cifically, 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.

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.

Recommended Texts

1. Devetak, R., George, J., & Percy, S. (2017). *An iintroduction to iinternational relations*. 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 Sørensen, 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.

GEOG– 5103 **Human Geography** **3(3+0)**

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. It also 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.

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
15. Rural settlements
16. Urban hierarchy and functions
17. Process of urbanization
18. Urban structure, morphology and theories
19. Land use and land cover patterns
20. Environmental issues, causes and remedies

Recommended Texts

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

Suggested Readings

1. Benko, G. & Shorhmay. (2004). *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*. (2nd ed.). London: Hodder Arnold.

URCE-5103 **Academic Writing** **3(3+0)**

Academic writing is a formal, structured and sophisticated writing to fulfill the requirements for a particular field of study. The course aims at providing understanding of writer's goal of writing (i.e. clear, organized and effective content) and to use that understanding and awareness for academic reading and writing. The objectives of the course are to make the students acquire and master the academic writing skills. The course would enable the students to develop argumentative writing techniques. The students would be able to the content logically to add specific details on the topics such as facts, examples and statistical or numerical values. The course will also provide insight to convey the knowledge and ideas in objective and persuasive manner. Furthermore, the course will also enhance the students' understanding of ethical considerations in writing academic assignments and topics including citation, plagiarism, formatting and referencing the sources as well as the technical aspects involved in referencing.

Contents

1 Academic vocabulary
2 Quoting, summarizing and paraphrasing texts
3 Process of academic writing
4 Developing argument
5 Rhetoric: persuasion and identification
6 Elements of rhetoric: Text, author, audience, purposes, setting
7 Sentence structure: Accuracy, variation, appropriateness, and conciseness
8 Appropriate use of active and passive voice
9 Paragraph and essay writing
10 Organization and structure of paragraph and essay
11 Logical reasoning
12 Transitional devices (word, phrase and expressions)
13 Development of ideas in writing
14 Styles of documentation (MLA and APA)
15 In-text citations
16 Plagiarism and strategies for avoiding it

Recommended Texts

1 Swales, J. M., & Feak, C. B. (2012). *Academic writing for graduate students: Essential tasks and skills* (3rd ed.). Ann Arbor: The University of Michigan Press.
2 Bailey, S. (2011). *Academic writing: A handbook for international students* (3rd ed.). New York: Routledge.

Suggested Readings

1 Craswell, G. (2004). *Writing for academic success*. London: SAGE.
2 Johnson-Sheehan, R. (2019). *Writing today*. Don Mills: Pearson.
3 Silvia, P. J. (2019). *How to write a lot: A practical guide to productive academic writing*. Washington: American Psychological Association.

URCS-5108 **Introduction to Statistics** **3(3+0)**

This course is designed for under-graduate level. Statistical analysis is a basic requirement in order to analyze the phenomenon related to all sectors. This course aims to produce skills related to descriptive as well as inferential statistical analysis. Use of descriptive, inferential, regression, sampling statistics has vital importance to analyze and decision making theories related to agriculture, economics and business statistics etc.

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: Ilmi Kitab Khana.
2. Walpole, R. E., Myers, R. H. & Myers, S. L. (1998). *Probability and statistics for engineers and scientists*. 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.
4. Weiss, N. A. (1997). *Introductory Statistics*. Boston: Addison-Wesley.

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

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. 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.

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.

URCI-5109 Introduction to Information & Communication Technologies 3(3+0)

The course introduces students to information and communication technologies and their current applications in their respective areas. Objectives include basic understanding of computer software, hardware, and associated technologies. They can make use of technology to get maximum benefit related to their study domain. Students can learn how the Information and Communications systems can improve their work ability and productivity. How Internet technologies, E-Commerce applications and Mobile Computing can influence the businesses and workplace. At the end of semester students will get basic understanding of Computer Systems, Storage Devices, Operating systems, E-commerce , Data Networks, Databases, and associated technologies. They will also learn Microsoft Office tools that includes Word, Power Point, Excel. They will also learn Open office being used on other operating systems and platforms. Specific software's related to specialization areas are also part of course. Course will also cover Computer Ethics and related Social media norms and cyber laws.

Contents

1. Introduction, Overview and its types.
2. Hardware: Computer Systems & Components, Storage Devices and Cloud Computing.
3. Software: Operating Systems, Programming and Application Software,
4. Introduction to Programming Language
5. Databases and Information Systems Networks
6. The Hierarchy of Data and Maintaining Data,
7. File Processing Versus Database Management Systems
8. Data Communication and Networks.
9. Physical Transmission Media & Wireless Transmission Media
10. Applications of smart phone and usage
11. The Internet, Browsers and Search Engines.
12. Websites Concepts, Mobile Computing and their applications.
13. Collaborative Computing and Social Networking
14. E-Commerce & Applications.
15. IT Security and other issues
16. Cyber Laws and Ethics of using Social media
17. Use of Microsoft Office tools (Word, Power Point, Excel), mobile apps or other similar tools depending on the operating system.
18. Other IT tools/software specific to field of study of the students if any

Recommended Texts

1. Vermaat, M. E. (2018). *Discovering computers: digital technology, data and devices.* Boston: Course Technology Press

Suggested Readings

1. Timothy J. O'Leary & Linda I. (2017). *Computing essentials*, (26th ed.). San Francisco: McGraw Hill.
2. Schneider, G. M., &Gersting, J. (2018). *Invitation to computer science*. Boston: Cengage Learning.

GEOG -5104 **Map Work** **3(2+1)**

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. Viewed in the broadest sense, this process 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.

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: Kalyani publishers.

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.

GEOG - 5105 History and Development of Geographic Thought 3(3+0)

This course surveys the major traditions of geographic thought from the early 20th century to the present. Attending to both 'human' and 'physical' perspectives in the discipline - as well as those that blur the lines between the social and natural sciences - we will explore the changing, contested nature of geographic knowledge in terms of its situated, historical contexts and its numerous reformulations in contemporary practice. In so doing, the course provides students with the background for understanding their research in terms of the philosophies and methods, and the convergences and departures that constitute the intellectual history of the discipline in general, and Geography at Madison in particular.

Contents

1. Nature of Geography
2. Evolution of Geography
3. Pre-classical and classical periods: ancient Geography
4. Medieval Geography: Muslim contributions, European contributions.
5. Modern Geography: Humboldt and Ritter, Geography from the middle of the 20th century, Dichotomies-physical and human, systematic and regional. Quantitative Revolution, Geo-informatics and Ecology.
6. Established traditions: Earth science, area study, spatial organization, man-land, system analysis and cartographic science.
7. Man-environment interaction themes: Environmental Determinism, Possibilism, Probabilism, Cognitive Behaviourism, World views on man-environment relationship.
8. Development of Nomothetic traditions: facts, concepts, hypotheses and paradigms, Ideographic vs. Nomothetic.
9. Philosophical framework: Positivism: Pragmatism, Phenomenology
10. Evolution of modern tools and models in geography
11. Development of geography in Pakistan

Recommended Texts

1. Dikshit R.K. (1998). *Geographical thought*. Upper Saddle River: Prentice Hall.
2. Ahmad, K.S. (2000). *Geography through the Ages*. Karachi: PGR.

Suggested Readings

1. Ayhew, S. (2008). *Geography*. London: Harmonds Worth.
2. Mitchel, B. (2000). *Geography and resources analysis*. New York: Norton & Company.
3. Tim, U. (1992). *The place of geography*. London: Longman.

GEOG- 5106 **Surveying** **3(1+2)**

Surveying is the science of measuring and recording distances, angles, heights and sizes on the earth's surface to obtain data from which accurate plans and maps is made. It is the art and science of determining the position of natural and artificial features on, above the earth's surface or establishing such point and representing this information on paper plans, as figures, tables or computer based map. The basic concerns regarding a survey are spaces and locations within them. Survey essentially takes note of specific point locations for later reference. Surveying has been essential elements in the planning and execution of nearly every form of construction. One of the main functions of surveying is to acquire data on the shape and position of features on the ground, and to somehow delineate this information on maps, plans and drawings so as to make this data useful for other observers/users. These maps and plans can range from simple drawings in terms of sketches through to plans and maps, all based on some fundamentals of graphical communication

Contents

1. Introduction
2. Instrumental survey and records
3. Surveying using the following instruments
4. Chain survey
5. Plane Table
6. Prismatic Compass
7. Determination of heights and slopes with Abney Level
8. Contouring by Indian Clinometer
9. Use of Dumpy level
10. Theodolite
11. Total station
12. Global Positioning System (GPS)

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: Kalyani publishers.

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.

URCE-5104 Introduction to English Literature 3(3+0)

The course is designed to provide the familiarity and comprehension of English literary pieces. The students may not be familiar or well-versed in the various genres of literature prior to taking this course. The course provides training and skills necessary to engage, understand, critically analyze, and enjoy the literary genres of literature: short story, poetry, novel and drama. Thestudents will explore the basic concepts of literary technique, narrative, poetic, and dramatic structures and innovations to engage with the more advanced cognitive aspects of literature. In addition to these theoretical skills, students will also read below the surface of the texts for their historical, ethical, psychological, social, and philosophical value by developing insights in how literature gives us a window into both the experiences of others and wider appreciation for the human condition. The course explores literary production in English against local context in particular, by emphasizing shifts in thought as well as genre innovation, i.e. medieval to modern. It provides an introduction to key texts, authors and literary periods, exploring the relationship of texts to their contexts and considering multiple perspectives in the different literary genres.

Contents

1. Poems, Milton: *Book IX*, lines 897–959.
2. Shakespeare: All the World is a Stage.
3. Browning: My Last Duchess
4. Wordsworth: The Leech Gatherer
5. Keats: Ode to Autumn
6. Walter De La Mare: Tartary
7. Short Stories, *The Necklace*
8. The Woman Who had Imagination
9. Shadow in the Rose Garden
10. Essays, *My Tailor*
11. Whistling of the Birds
12. One Act Play, *Riders to the Sea*
13. Novel, *Animal Farm*

Recommended Readings

1. Kennedy, X. J.. & Gioia, D. (2014). *Literature: An introduction to fiction, poetry, drama, and writing*. Boston Pearson.
2. Mays, K. J. (2014). *The Norton introduction to literature*. New York: Norton.

Suggested Readings

1. Bausch, R & Cassill. R. V. (2006). *The Norton anthology of short fiction*. New York: Norton & Company.
2. Gardner, J. E., Lawn, B., Ridl, J., & Schakel, p. (2016). *Literature: A portable anthology*. Boston: Bedford St. Martins.

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

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. Upon the 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.

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
8. Personality development. Concept &Theories; Tips to improve personality
9. Health and Stress, Stress and Coping, Stress, Health, and Coping in the Workplace, Effective Measure to deal with stress and ways to cope.
10. Application of Psychology in Our Social Lives

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.

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

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. 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.

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.

GEOG -6107 **Regional Concepts** **3(3+0)**

Regional geography is a major branch of geography. It focuses on the interaction of different cultural and natural geo-factors in a specific land or landscape, while its counterpart, systematic geography, concentrates on a specific geo-factors at the global level. By the end of this course, the student will be able to describe what are geography and regional Geography and also major cultural region of the world. It focuses on major physical region and briefly explains major historical events and the impact of these events on World Geography. Students will get an introduction to the main regions of the world in terms of both their uniqueness and similarities. They will thus gain a perspective about social and cultural diversity of the world. Students will learn the relationships between the global, the regional and the local, particularly how places are inserted in regional and global processes. Students will be exposed to historical, economic, cultural, social and physical characteristics of regions, notably how they came to be, their main role and function and how they are changing. Students will see how human activities and the regional environment interact, particularly how societies reflect their regional environment.

Contents

1. Introduction to Regional Concepts
2. Scope, Status, and the significance of the regional approach, Regional approach and its evolution
3. Criteria for dividing world into regions
4. Physical Attributes: Location, Physiography, Climate, Soils, Hydrology and Natural Vegetation
5. Economic attributes: Human Resources, Mineral and Power resources, Agriculture, Industry, Communication and Trade
6. Types of Regions
7. Physical Regions, Economic Regions, Political Regions, Cultural Regions
8. Special Purpose Regions
9. Major Regions of the world
10. Role of the Region in Global Development

Lab. Work

Identification and delimitation of different types of regions on maps

Recommended Texts

1. Bradshaw, M. & White, G. W. (2007). *Contemporary world regional geography: global connections, local voices*. Boston: McGraw-Hill.
2. Deblij, H. J. D & Muller, P. O. (2011). *The world today: concepts and regions in geography* . New York : John Wiley & Sons.

Suggested Readings

1. Hobbs, J. (2010). *Fundamentals of world regional*. Boston: Cole Cengage learning.
2. Knox, P. L. & Marston, S. A. (2003). *Places and regions in global context: human* geography. New Jersey: Prentice Hall.
3. James. & Preston, E. (2000). *One world divided*. New Jersey: Prentice Hall.

GEOG -6108 Geomorphology 3(3+0)

Geomorphology is the study of landforms, their processes, form and sediments at the surface of the Earth (and sometimes on other planets). Study includes looking at landscapes to work out how the earth surface processes, such as air, water and ice, can mold the landscape. Landforms are produced by erosion or deposition, as rock and sediment is worn away by these earth-surface processes and transported and deposited to different localities. The different climatic environments produce different suites of landforms. The landforms of deserts, such as sand dunes and ergs, are a world apart from the glacial and periglacial features found in polar and sub-polar regions. So geomorphology is a diverse discipline. Although the basic geomorphologic principles can be applied to all environments, Geomorphologists tend to specialize in one or two areas, such Aeolian (desert) geomorphology, glacial and periglacial geomorphology, volcanic and tectonic geomorphology, and even planetary geomorphology. Most research is multi-disciplinary, combining the knowledge and perspectives from two contrasting disciplines, combining with subjects as diverse as ecology, geology, civil engineering, and hydrology and soil science.

Contents

1. Scope and status of geomorphology
2. Introduction to geomorphic concepts/principles
3. Factors of landform development; structure, process and geological time scale
4. Endogenic Processes
5. Isostasy
6. Diastrophism
7. Continental drift
8. Plate tectonic
9. Volcanism
10. Earthquakes
11. Exogenic Processes
12. Weathering; mass wasting and their types
13. Cycle of erosion: fluvial , glacial, eolian and Karst
14. Fluvial Erosional landforms, transportation mechanisms of running water; fluvial depositional landforms, types of drainage patterns and structure
15. Glacier formation, glacier as geomorphic agent: glacial erosion and depositional landforms; glacio-lacustrine and glacio-fluvial features
16. Eolian landforms: wind as geomorphic agent; eolian erosional landforms, transportation by wind; Eolian depositional landforms
17. Ground water: porosity and permeability of rocks; aquifers
18. Karst topography and associated landforms
19. Sea wave as geomorphic agent; erosional and depositional landforms
20. Soil development

Recommended Texts

1. Thompson, G. R., & Turk, J. (1998). *Introduction to physical geology*. Brooks/Cole Publishing Company.
2. Thornbury, W. D. (2004). Principles of geomorphology. New York: John Willy & Sons.

Suggested Readings

1. Englen O.D.V. (2000). *Geomorphology*. New York: Macmillan.
2. Stringer, E. T. (2004). *Modern physical geography*. New York: John Wiley.

GEOG – 6109 Climatology 3(3+0)

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. 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.

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)
15. Lab. Work Recording and analysis of weather data, interpretation of weather maps and synoptic charts. Visit to local office of Pakistan Meteorological Department and hands on exercises.

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.

GEOG - 6110 Economic Geography 3(3+0)

This course provides an introduction to economic geography. This course is an introduction to the theories, concepts, methods and data used by geographers to analyze the location of economic activities, the spatial organization of economic systems, the human use of the earth's resources and environmental issues. Topics studied include agriculture, manufacturing, transportation, retailing, urban structure, spatial diffusion and economic development.The course explores processes driving spatial patterns of economic activity at the global, national, regional, and local scales. Topic areas include economic globalization, spatial distribution of industrial sectors, multinational corporations, international trade, regional economic development, and illegal economic activities. The course looks at the development of the global marketplace in both the developed and the developing world. After the completion of this course student will be able to understand the significance of geographic concepts for socio-economic processes and the dynamics of the world economy, man's resource use and the pressure that population puts on the resource base.

Contents

1. Introduction (Definition ,Scope, Approaches to Study Economic Geography)
2. Branches of Economic Geography
3. Relationship with other Branches of the Geography
4. Producer and Consumer
5. Decision Making
6. Man Against Nature
7. Comparative Advantage
8. Perception
9. Evolution of world economic systems: Medieval feudal economics, economic impacts of colonialism. Modern world economic systems
10. Concept of natural resources and reserves
11. Human resource and its development
12. Classification of economic activities
13. Primary activities; gathering, hunting, herding
14. Subsistence, Intensive and extensive farming, commercial grain farming
15. Livestock farming, dairying, mixed farming, plantation farming, lumbering, fishing and mining
16. Green revolution and its implications
17. Secondary activities: Industrial revolution and manufacturing industries
18. Tertiary activities
19. Quaternary and Quinary activities
20. Regional inequalities, sustainable development and poverty alleviation
21. Impacts of Globalization

Recommended Texts

1. Aoyama, Y., James T. M. & Susan H. (2012). *Key concepts in economic geography*. Singapore: SAGE. .
2. Boyee, R. R. (2000). *The basic of economic geography*. New York: Holt, Rinehart & Winston.

Suggested Readings

1. Khan, F.K. (1998). *An introduction to economic geography*. Karachi: Oxford Publishers.
2. Knox, P & Agnew, J. (2003). *The geography of the world economy*. London: Edward Arnold.
3. Alnwick, H. (2012). *A geography of commodities*. London: Harrap.

GEOG - 6111 Quantitative Methods in Geography 3(3+0)

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. 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.

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.

GEOG -6112 Principles of Cartography 3(1+2)

Cartography or mapmaking is the study and practice of making representations of the Earth on a flat surface. The discipline of cartography combines science, aesthetics, and technical ability to create a balanced and readable representation that is capable of communicating information effectively and quickly. Cartography is a complex, an ever-changing field, but at the center of it is the map-making process. Viewed in the broadest sense, this process 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.

Contents

1. Evolution of Cartography
2. Basic geodesy, spherical, ellipsoidal and geoidal earth, geographical and planer.
3. Coordinates, properties of the graticule and geodetic position.
4. Map projections: Major types, merits and demerits of commonly used map projections.
5. Map Datum
6. Symbolization, symbol types and graphic variables
7. The symbolization problems, symbolizing graphic features.
8. Lettering principles.
9. Mapping statistical surfaces
10. Thematic map, choropleth, dot map, isolines, area cartograms.
11. Principles of cartographic design, general design problems; design of map symbols
12. Basic procedure and designing of the thematic maps such as topographic, climatic, economic, population, settlements, urban morphology etc.
13. Map production, form of map output, construction material, output options, composing separations, proofing.
14. Introduction to Digital Cartography
15. Terrain data (Digital Elevation Model/ Digital Terrain Model)

Recommended Texts

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

Suggested Readings

1. Ahmad. Z. (1998). *Text book of Practical geography*. Cambridge: Cambridge University Press.
2. Bygott, J. (2000). *An introduction to mapwork and practical geography*. University Tutorial Press.
3. Bygott, J. (2000). *Mapwork and practical geography*. New Dehli:University Tutorial Press.

GEOG - 6113 Oceanography 3(3+0)

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. It discusses 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.

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. (2000). *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.

GEOG -6114 Remote Sensing 3(2+1)

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. It 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.

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.

Lab. Work

Interpretation of aerial photographs, various sensors data comparison, thermal infrared image interpretation, introduction to ERDAS imagine, display, geo-linking, identification of targets, field trips.

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.

GEOG- 6115 Research Methods 3(3+0)

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. 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).

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.

GEOG - 6116 **Population Geography** **3(3+0)**

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. 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 processes of political, environmental, urban, economic, and cultural change.

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 growth 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.

GEOG -6117 Geographical Information System 3(2+1)

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. The lecture sessions in this class 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.

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

Lab. Work

Introduction to GIS Lab (hardware/ software), Raster/ Vector/ Attribute Data Display, Scanning, Digitization, coordinate based point mapping, Raster/ Vector Conversion,

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.

GEOG- 6118 Environmental Geography 3(3+0)

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. 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.

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. Botkin, 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.

GEOG -6119 **Urban Geography** **3(3+0)**

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? Why 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. 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.

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.
14. Concept and principles of Planning.
15. History of Town Planning-ancient and medieval Modern Planning-urban development urban renewal neighbourhood planning.
16. A study of the process of urbanization in Pakistan.
17. Urban Slums
18.

Recommended Texts

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

Suggested Readings

1. Douglas, I., Goode, D., Houck, M., & Wang, R. (Eds.). (2010). *Handbook of urban ecology*. 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.

GEOG -6120 **Digital Image Processing** **3(2+1)**

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. Now 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.

Contents

1. Multispectral, Thermal and Heperspectral 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 - Ooject Oriented Classification
11. Microwave Sensing
12. Application of Remote Sensing
    Land Cover Mapping, Land use change monitoring, Urban expansion Mapping, Environmental Monitoring, Cadastral Mapping

Lab. Work

Advanced Image processing on MATLAB, ERDAS IMAGINE, ENVI

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 Readings

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.

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

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. 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.

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.
3. Tayyeb, A. (2000). *A political geography of Pakistan.* Oxford: Oxford University Press.

GEOG - 6122 **Cultural Geography** **3(3+0)**

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. The 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.

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:
16. Religion
17. Language
18. Rural & Urban Communities
19. Study of Pakistani Culture
20. History, Present Patterns and Future Prospects.
21. Current Issues:
22. Terrorism, Green Politics, Globalization, Human rights Revolution of Information, Gender Geography and Cultural problems.

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.

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

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. 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.

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. (2005). *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. (2004). *Environmental Hazards. Assessing Risk and Reducing Disaster*. London: Routledge.

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

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. 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.

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.

GEOG - 6125 Hydro Geography 3(3+0)

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. These fundamentals are then 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.

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. Edwin 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.

GEOG -6126 Medical Geography 3(3+0)

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 geographics. Focuses on the design of GIS-based models to address health and healthcare issues. 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.

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

GEOG –6127 Political Geography 3(3+0)

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 which focuses 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 the territorial basis of international trade. We will explore how politics works with a concern for where political impacts occur at a variety of geographical scales (from the international to the local) while also considering how geographical factors impact political actions. We'll also 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.

Contents

1. Nature and objectives of Political Geography, Definition and development of political geographic thought.
2. A critical examination 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.
16. Functional approach.
17. Forces affecting the internal functioning of a state:
18. Factors affecting the external relations of a state:
19. A study of the foreign relations of the following states in relation to the above factors:
20. U.SA, U.K, Russia, China, A detailed political geographical study of Pakistan
21. World Organizations

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.

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

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. 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.

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.
18. The Human Factor in Agricultural Development.
19. Examples of Urban/Rural/Regional Planning with Special Reference to Pakistan:
20. Kulu Region.
21. Multan-Bahawalpur Region
22. Sargodha Region.
23. Barani Region.
24. Students shall be required to choose a region and develop conceptual hierarchy and planning models for the region. The report shall accompany all regional data with a master regional plan.

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.

GEOG - 6167 Agricultural Geography 3(3+0)

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, specialised 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 activities 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. Thus, 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

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
   factors influencing agricultural patterns:
7. Physical factors: the terrain, climate, soil, water resources
8. Socio-economic factors: technological, population, cultural, infrastructure
9. Land, labour and capital
10. Government and regional policies, models in agricultural geography:
11. The nature and need of models
12. Classification of models
13. Models of agricultural activity, agricultural regions: concepts and techniques:
14. Concept and methodology
15. Techniques: normative, empirical, single element, statistical
16. Methods of agricultural regionalization
17. Data classification and distribution
18. Agricultural types
19. Agricultural systems of the world, field studies and surveys:
20. Land use survey: techniques of land use survey
21. Land capability survey
22. Land suitability evaluation survey
23. Land classification

Recommended Texts

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

Suggested Readings

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.

GEOG - 6168 Conservation of Resources 3(3+0)

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. 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.

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,
5. 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.
6. 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.
7. 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.

Recommended Texts

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.

Suggested Readings

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 Dehli: Academic Press.

GEOG -6170 **South Asia** **3(3+0)**

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. The 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.

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.