

NATIONAL UNIVERSITY



Third Year Syllabus Department of Geography and Environment

Four Year B.Sc. Honours Course
Effective from the Session : 2013-2014

National University
Subject: Geography and Environment
Syllabus for Four Year B.Sc. Honours Course
Effective from the Session: 2013-2014

Year wise Paper, Marks and Credit distribution

THIRD YEAR

Paper Code	Paper Title	Marks	Credits
233201	Environmental Geography	100	4
233203	Soil and Biogeography	100	4
233205	Geography of Bangladesh	100	4
233207	World Regional Geography	100	4
233209	Cultural Geography	100	4
233211	Population Geography	100	4
233213	Quantitative Geography	100	4
233214	Practical–III	100	4
	Total =	800	32

Detailed Syllabus

Paper Code	233201	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Environmental Geography			Exam Duration: 4 hrs.

1. Environmental Geography: meaning and definition, scope of environmental geography, geography and ecology, basic concepts of ecology, environmental geography and related sciences.
2. Environment: meaning, structure, types and components of environment; geography and environment; environment and resources, environment and society.
3. Human-environment relationships: major approaches, environment and human, man's interaction with the environment.
4. Ecosystem: meaning and concept, types and components of ecosystem; functioning of ecosystem; energy flow in the ecosystems; concepts, principles and types of biogeochemical cycles, ecological production; trophic levels, food chains and food webs; ecological pyramids. Biomes: meaning and types, major ecosystems of the world.
5. Human impact on natural environment
6. Degradation of environment: meaning, types, causes, and process.
7. Environmental pollution: meaning, sources types, pollution of air, water, soil, noise, world distribution of major pollution areas.
8. Global environmental issues.
9. Management of environment: approaches and issues.

Suggesting Readings

1. Singh, S. 2008. Environmental Geography, Allahabad, India: Prayag Pustak Bhawan
2. Saxena, H M. 2004. Environmental Geography, Jaipur, India: Rawat Publications
3. Marsh, WM and Gossa, Jr. J. 2005. Environmental Geography. New York: John Wiley & Sons.
4. Park, CC. 2001. The Environment: Principles and Practices. Psychological Press, USA.
5. Moniruzzaman, M. Environmental Geography, (Forthcoming) Metropolis Publishing, Dhaka

Paper Code	233203	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Soil and Biogeography			Exam Duration: 4 hrs.

1. **Soils:** Definition and components.
2. **Physical Properties of Soils:** Texture, structure, porosity, colour and permeability.
3. **Chemical and Mineralogical Properties of Soils:** Weathering and mineralogical Composition; Soil PH; Soil water; Soil chemistry.
4. **Organic Properties of Soils:** Components of organic matter; Flora & fauna; Humus formation and characteristics.
5. **Soil Genesis:** Factors of soil forming process; Horizons and profile.
6. **Soils Classification and Conservation:** Classification of world soils; Seventh Approximation; Soil erosion, Stalinization, pollution and soil conservation.
7. **Geography of Plant Communities:** Evolution of plants; Classification; Plant communities and succession.
8. **Plant and their Environment:** Biotic, habitat, climatic, edaphic and anthropogenic factors for the growth of vegetation.
9. **Major Biomes of the World Forest:** Tropical, equatorial, temperate, grassland, deserts.
10. **Zoo-geographical Regions of the World.**
11. **Biodiversity:** Concepts and importance; Ecosystem and biodiversity; Assessment and conservation; Biodiversity of Bangladesh.

Selected Readings:

Brammer, H. The Geography of the Soils of Bangladesh, UPL, Dhaka.
 Bridges, E. M. Principles and Applications of Soil Geography, Halsted Press/Brikeland, P. W. *Soils and Geomorphology*, Oxford University Press.
 Buckman, H.O. and Brady, N.C. *The Nature and Properties of Soil*, Eurasia publishing House, New Delhi.
 Bunting, B. T. *The Geography of Soils*, Hutchinson, London
 Deneveau, P. *Biogeography: An Ecological Perspective*, Ronald Press.\
 Daji, J. A. A Textbook of Soil Science, Asia Pub. House
 Darlington P. J. *Zoogeography: The Geographic Distribution of Animals*, Wiley and Sons, New York
 Haroun-er-Rashid, *Geography of Bangladesh*, UPL, Dhaka
 Mather, Alexander S. *Global Forest Resources*, Pinter
 Mathur, H. S. *Essentials of Biogeography*, Pointer Publishers, Jaipur
 Miller, R. W. and Donahue, R. L. *Soils*, Prentice-Hall of India
 Pears, Nigel, *Basic Biogeography*, Longman, London, New York
 Pitty, A. F. *Geography and Soil Properties*, University Press
 Robinson H. *Biogeography*, Mac Donald and Evans, London
 Sedden, Brian. *Introduction to Biogeography*, Duckworth, London
 Shiva, Vandana, *Biodiversity: Social & Ecological Perspectives*, World Rainforest Movement
 Simmons T. G. *Biogeography: Natural and Cultural*, Arnold Heinemann, London
 Tivy Joy, *Biogeography, A Study of Plants in the Ecosphere*, Addison Wesley-Longman

Paper Code	233205	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Geography of Bangladesh			Exam Duration: 4 hrs.

1. **Introduction:** Geo-physical location and its Importance; Boundary characteristics and problems; Geopolitical emergence of Bangladesh; Position of Bangladesh in regional and global context.

2. **Physical Structure and Environmental Settings:** Geological background including formation and characteristics of Bengal Basin; Relief and physiography; River systems and wetlands; Coastal environment; Weather and climate; Soils.
3. **Geographic Study of Natural Resources:** Land, water, minerals, fuel and energy, agriculture including fisheries, forestry and livestock.
4. **Geographic Study of Population and Settlement:** Anthropological origin of the people; Population distribution and dynamics (fertility, mortality, migration); Population density and growth; Population as human resource; Urban and rural settlements of Bangladesh (settlement types, forms, hierarchies, and rural market centers).
5. **Geographic Study of Major Economic Activities:** Primary activities (agriculture, fisheries, forestry, livestock and mining); Secondary activities (large, medium, small and cottage industries); Tertiary activities (trade, business and services like transport & communication, health, education etc.).
6. **Major Regions of Environmental Concern:** Coastal belt, Hilly region, Char areas, Haor areas, Barind and Modhupur Tracts, Megacity regions (Dhaka and Chittagong).
6. **Major Challenges and Issues of Sustainable Development:** (1) Acute population pressure and its impacts, (2) Skewed distribution of resources and income, (3) Poverty alleviation, (4) Regional inequality and development, (5) Strengthening human resource development and exporting man-power; (6) Developing disaster and environment friendly physical infrastructure, (7) Protecting biodiversity and environment from natural and man-made hazards, and (8) Haphazard growth of cities and rising risks of disasters.

Selected Readings:

- Ahmad, Q.K., Ahmad, N, and Rasheed, K.B.S. (eds) (1994 hrs.) *Resources, Environment and Development in Bangladesh*. Dhaka: Academic Publishers.
- Asiatic Society of Bangladesh, *Banglapedia*, Dhaka.
- Bangladesh Bureau of Statistics, *Bangladesh Population Census Reports*.
- Bangladesh Bureau of Statistics, *Bangladesh Census of Agriculture and Livestock*.
- Bangladesh Bureau of Statistics, *Statistical Yearbook of Bangladesh*, Published annually by (BBS).
- Bangladesh Centre for Advanced Studies, *Wetlands of Bangladesh*, Dhaka
- Brammer, Hugh (2012), *The Physical Geography of Bangladesh*, UPL, Dhaka
- Brammer, H. *The Geography of the Soils of Bangladesh*, UPL, Dhaka.
- Haroun-er-Rashid, *Geography of Bangladesh*, UPL, Dhaka
- Imam, B. *Bangladesher Khanis shompod*, Bangla Academym, Dhaka (in Bangla).
- Islam M.A. *Environment; Land use and Natural Hazards in Bangladesh*, University of Dhaka.
- Islam, Nazrul *Dhaka from City to Mega City: Perspectives on People, Places, Planning and Development Issues*, USP, Department of Geography, DU.
- Islam, Nazrul and Ahsan, Rosie Majid eds. *Urban Bangladesh : Geographical Studies*, USP, Department of Geography, Dhaka University.
- IUCN/GOB, *Water Resources, Flood Control, National Conservation Strategy Report*, Dhaka.
- Rahman A. Atiq et al. *Environment and Development in Bangladesh* Vol.1-2, UPL Dhaka
- Rasheed, K.B.Sajjadur, *Bangladesh: Resource and Environmental Profile*, AHDPH, Dhaka.
- Rasheed, K.B.Sajjadur, *Water Resource Management with example from Bangladesh*, A.H. Development Publishing House, Dhaka.
- UPL, *Report of the Task Forces on Bangladesh Development Strategies for the 1990's* Vol. 1-4 hrs., UPL, Dhaka.
- Wadia, D.N. *Geology of India*, Tata McGraw-Hill.

Paper Code	233207	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	World Regional Geography			Exam Duration: 4 hrs.

1. Introduction to Regional Geography:

- 1.1 The major geographic regions in the world.
- 1.2 Nature and human geographic processing
- 1.3 Key topics in the geographic interpretation of countries and regions.

2. Europe:

- 2.1 Geography and Human experience in Europe
- 2.2 Environmental and historical factors in Europe's economic successes

3. Former Soviet Union:

- 3.1 Geography and planning in the former Soviet Union.
- 3.2 Core land and outlying regions in the USSR

4. Middle East:

- 4 hrs..1 The Middle East as cultural focus and problem area.
- 4 hrs..2 Countries common Threads and national distinctiveness

5. The Orient:

- 5.1 Geographic themes and variations in the Orient
- 5.2 The fragmented and contentious world of Southeast Asia
- 5.3 Continuity and change in the Chinese realm

6. Africa:

- 6.1 Regions of Tropical Africa
- 6.2 Condition and problems of the African development

7. Latin America:

- 7.1 The many faces of Latin America
- 7.2 The diversity of Latin American regions

8. Anglo –America:

- 8.1 The geography of national successes in Anglo-America
- 8.2 National and Regional character of Canada and USA

9. The Pacific world:

- 9.1 Geographic diversity in the pacific Island
- 9.2 Environmental and functional relation of Australia and New Zealand.

Suggesting Reading

1. Wheeler, J.H and Kostbade J.T 1990. World Regional Geography. Chicago Saunders Publishing.
2. Johnson, DL et al.ed.s.2010. World Regional Geography, PHI Learning Private Ltd

Paper Code	233209	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Cultural Geography			Exam Duration: 4 hrs.

1. Introduction: Definition of culture and Cultural Geography, scope, themes and methods of Cultural Geography.
2. Culture: Nature, types and traits.
3. Man-Environment Interaction: Environmental determinism and possibilism
4. Processes of Culture Change: Invention/innovation, Diffusion and integration,
5. Assimilation and Acculturation.
6. Overview of Evolution of Human Race and Culture: Evolution of Mankind (Australopithecus to Homo Sapiens), Evolution of material culture and livelihood patterns (Stone ages, Ages of metals, Domestication of plants and animals, agricultural livelihood, industrial revolution and urbanization, globalization and e-culture.)
7. Major Old and Extinct Cultural Hearths: Babylonian/Mesopotamian, Nile Valley, Indus Valley, Chinese/Hwang Ho Valley; Maya, Inca).
8. Geographic Dimensions of Race, Religion and Language.
9. Cultural Heritage and Conservation.
10. Origin and Evolution of the People of Bangladesh: Anthropological origin of the people, including major ethnic groups; Archeological sites.

Selected Readings:

Bateman, *How Man Began*

Birdshell, *Human Evolution*

Foster, *World Civilization*

Griffith Taylor; *Geography in the 20th Century*, London

Hoebel, *Anthropology: The Study of Man*, N.Y.

Leakey, *Stone Age*

Perpellese, A.V. *Human Geography*, London

Russell, *Culture Worlds*

Simmons, *Change the Face of the Earth Culture Environment*

Spencer, J. E. & Thomas (Jr.) W.L. *Cultural Geography*, N.Y.

Spencer, J. E. *Introduction to Cultural Geography*, N.Y.

Starr, *Early Man Prehistory and the Civilization of the Near East*.

Schenk, *The History of Man*

Wagner & Mikesell (eds), *Readings in Cultural Geography*, Chicago

Wallbank, Walter and Others, *Civilization Past and Present*

রশীদ, কে. বি. এস. সাংস্কৃতিক ভূগোল, ঢাকা : বাংলা একাডেমী

দাস গুপ্ত, অমল, মানুষের ঠিকানা, কলিকাতা : রাখাল সেন, কলিকাতা

Paper Code	233211	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Population Geography			Exam Duration: 4 hrs.

1. **Introduction:** Definition and concepts, Scope and development of Population Geography, Approaches of studying Population Geography.

2. **Population Data Sources:** Population census and sample survey, Registration systems (Vital Registration System, Population Registers, International Migration Statistics, Other sources of data-especially in Bangladesh).
3. **Population Distribution and Redistribution:** Geographical distribution of global and Bangladesh population, Population density, Determinants or Factors affecting population distribution and density, Population redistribution.
4. **Patterns of Population Composition:** Biological (age and sex), Social (language, religion and education), Occupation and income, Rural and urban.
5. **Population Growth:** Theories of population growth (Malthus, Optimum Population, Demographic Transition Theory), Patterns of population growth (global, developed and developing countries and Bangladesh).
6. **Population Dynamics along with their Determinants and Measures:** Fertility, Mortality and Migration.
7. **Techniques of Population Analysis:** Life table analysis, Age-sex structure analysis, Population projection, Migration estimates.
8. **Population Policy:** Population policy of Bangladesh and some other countries relevant to Bangladesh.

Selected Readings:

Beaujeu, G. J. *Geography of Population*
 Bogue, D.J., 1978: *Principles of Demography*, NY
 Clark, J.J. 1978: *Population Geography*, London.
 Demko, G.J., H.M. Rose, and A.A. Schnell 1986: *Population Geography: A Reader*, NY
 Ehrlich, P.R. and A.H. Ehrlich 1991: *Population, Resources and Environment*, NY.
 ESCAP, 1981: *Population of Bangladesh: Country Monograph Series 8*, United Nations. NY.
 Lucas, D. et al 1990: *Beginning Population Studies*, ANU, and Canberra.
 Shryock, H.S. and Jacob S Siegel, *The Methods and materials of Demography*, Academic Press Inc.
 Trewartha, G.T. *A Geography of Population: World Patterns*
 Woods, R. *Population Analysis in Geography*
 Zilensky, W. 1984 hrs.: *A Prologue to Population Geography*, UK.

Paper Code	233213	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Quantitative Geography			Exam Duration: 4 hrs.

1. Introduction: Basic statistical concepts in Geography and Environment.
2. Data Sources, Types and Measurements: Sources (primary and secondary); Types (continuous and discontinuous, integer and real number, individuals and variables, Discrete and non-discrete); Levels of Measurement (nominal, ordinal, interval and ratio).
3. Uses of Statistics: Description, inference, significance and prediction.
4. Data Summarization: Frequency table; Techniques of graphical representation (histogram, polygons, relative and cumulative graphs, ogive); Measures of central tendency (mean, median and mode); Measures of dispersion (absolute measures – range, mean deviation, standard deviation- variance, quartile deviation; relative measures, co-efficient of variation, coefficient of quartile and mean deviation);

- Nature of dispersion (skewness and kurtosis).
- Correlation and Regression: Linear correlation (Pearson's Product Moment correlation and Spearman's Rank Correlation); Simple linear regression analysis (regression by the Least-Squares Method, Multiple regressions and Residuals Analysis)
 - Hypothesis Testing: Definition and concept of hypothesis, Levels of significance, Student's t-test and Chi-square test, Analysis of variance.
 - Sampling: Concept of population, sample and sampling; Types of sampling in geographical and environmental research (random, systematic; stratified; cluster; hierarchical or multistage); Sample size determination.
 - Probability: Empirical definition of probability, Elementary probability theory, Probability distributions and properties (binomial, normal and Poisson).

Selected Readings:

- Cole, J.P. & King C.A. M. Quantitative Geography - Techniques and Theories in Geography, Johns Wiley & Sons Ltd. USA.
- Elahi, K. 1991, Porishonkhan Poddhoti ebong Sthanik Bisleshion; Academic Publishers: Dhaka (in Bangla).
- Gregory, S. Statistics Methods and Geography.
- Hammond, R. and McCullagh, 1990, Quantitative Techniques in Geography: An Introduction, Oxford, UK.
- Johnston, R.J. 1990: Multivariate Statistical Analysis in Geography, Longman: USA
- Lippman, Elements of Probability and Statistics
- Mahmood, A. 1985, Statistical Methods in Geographical Studies, Regesh Publications, New Delhi: India.
- Mia, M.A. and Mian, M.a. 1988: Porishonkhan Porichiti; Idean Library, Dhaka (in Bangla)
- Taylor, P. J. Quantitative Methods in Geography. Houghton Mifflin Company, London.
- Yeates, M. 1985, An Introduction to Quantitative Analysis in Human Geography, McGraw Hill Inc: USA.

Paper Code	233214	Marks: 100	Credits: 4	Class Hours: 60 hrs.
Paper Title:	Practical-III			Exam Duration: 4 hrs.

(Exam 75 and Fieldwork with Report 25)

Section I: Map Interpretation (Marks - 25)

- Introduction:** Basics of maps and map reading (elements of map, understanding cartographic illustrations and symbols); Concepts and scope of map analysis and interpretation.
- Understanding and Interpretation of Topographical Maps:** The language of maps (conventional signs and symbols; contours and cross sections); Understanding and interpretation of physical features (relief, slopes, drainage system, water bodies, physiographic regions); Understanding and interpretation of human/cultural features (settlement patterns, transport network); Understanding and interpretation of different types of land use (major land use patterns, analysis of physical and anthropogenic factors which influence the development of different land uses).
- Understanding and Interpretation of Weather Maps:** The language of weather and climatic maps and their types and differences; Nature and types of data required for

weather maps; Analysis and interpretation of daily weather maps broadcasted by radio and TV media.

4. **Understanding and Interpretation of Geological Maps:** Folding, faults, lineament, seismic.

Section II: Research Methodology (Marks - 50)

1. **Introduction:** Definition, concept and types of scientific research; Nature and types of research in Geography and Environment.
2. **Familiarity with Geographical Data and Publications:** Nature, types and sources of data; Geographical publications by national and international organizations.
3. **Methods and Techniques in Geographical Research:** Techniques of information collection and documentation (observation methods, case study, PRA, RRA, RGA, FGD; Style of writing references and bibliography, footnotes, quotations; Writing reviews (book, articles) and abstracts; Techniques of library research or literature survey.
4. **Preparation of Research Proposal:** Selecting and defining research problem or topic; A complete outline and methods of writing a research proposal, term paper, report, journal article and thesis.
5. **Conducting Field Research:** Selection of study area; Hypotheses formulation; Sampling design; Preparation of questionnaire or checklist and base maps; recording field information and conducting field survey; Monitoring and evaluation field survey.
6. **Data Processing, Analysis and Presentation:** Scientific way of processing of secondary and primary data; Analysis and interpretation of processed data and maps using various statistical, cartographic, graphic and GIS techniques; Organization and drafting of research report; Dissemination or presentation of research findings to a seminar or meeting.

Section III: Fieldwork (Marks-25):

Study of Soil, Water, Flora and Fauna in a selected study area and stay at least two working days in the field.

Selected Readings:

- Ajaegbu, H.I. and Faniran, A. *A New Approach to Practical Work in Geography*.
Alam, M.S. and Rashid, 2000: *Manchitra Pronoyan O Manchitra Bisleshan*; Oxfam, Dhaka (in bangla).
Avery, T.E. 1965: *Interpretation of Aerial Photographs*, Burgess: Mimmepolis.
Black, James A. & Dean, A. Champion, 1987: *Methods and Issues in Social Research*.
Cansettari, S. 1993: *Introduction to Integrated Geo-Information management*, Chapman & Hall: London.
Greitzer, *Elementary Topography and Map Reading*.
Keates, *Cartographic Methods*.
Lawerence, *Cartographic Design and Production*.
Lillesand, T.M. and Kiefer, R.W. 1994 hrs.: *Remote Sensing and Image Interpretation*, Wiley: NY.
Raitz, K.B. and Hart, J.F. 1987: *Cultural Geography on Topographic Maps*, Wiley: NY.
Rouf, K. A. and Elahi, K.M.: *Bhugole Gobeshona Porichiti*, Shujoneshu Prokashoni, Dhaka (in Bangla)
Singh, R.L. *Elements of Practical Geography*
Taha, M.A. *Manobick Bhogal* (in Bangla) (Human Geography), Rajshahi University, Rajshahi.
Turabian, K.L. 1968: *A Manual for writers of term papers, thesis and dissertation*, London.
White, *Complete Guide to Map Reading*